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1923

VETERINARY MEDICINE

4753 GRAND BOULEVARD, CHICAGO

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VOL. XVIII No. 2

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Veterinary Medicine

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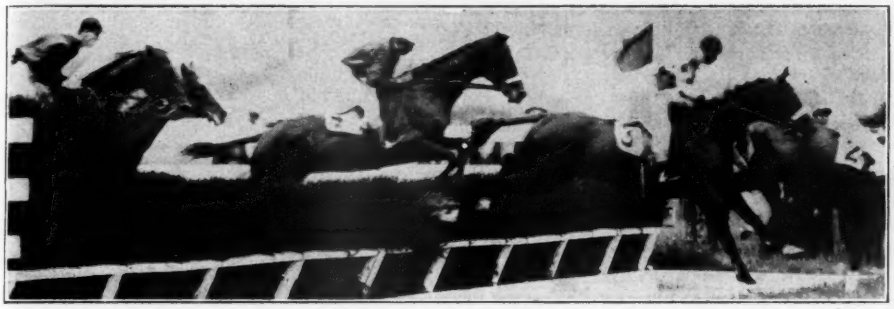
OVER THE JUMPS AT AQUEDUCT



International Photo

Medical Knowledge Among Laymen Not Harmful

EVER since the agricultural colleges of this country opened their doors there has been a great deal of complaint and anxiety displayed from within the ranks of the veterinary profession about the instruction in veterinary medicine given to the agricultural students. We have always seemed to be afraid that teaching medical knowledge among the laymen was harmful to us and to them. To us, because we might lose some practice; and to them, because we think a little knowledge is a dangerous thing. At least, these have been our arguments, and the excerpt from the proceedings of the Idaho Veterinary Medical Association of 1922, published in the December issue, shows that our attitude has not changed much in this connection.

With a considerable show of feeling, members of this association attacked the custom of teaching veterinary medicine to agricultural students in some of the western agricultural colleges on the grounds that such students trespass upon their vested field. That is to say, they express a fear that owners and caretakers of live stock were being taught something about the care and treatment of animals that would prove harmful to the practicing veterinarian.

Knowledge Will Out

The one thing we must get fixed into our heads is that no one has a monopoly on the world's knowledge, and that the determination to acquire as much of this knowledge as possible for individual use is something no one can control, even though it were advisable to do so. What mother does not try to learn all she can about caring for her baby? What man does not learn something about the best drug for a sour stomach, headache or a sprained ankle? What farmer is not interested in carpentry, painting, plumbing, entomology, mechanics and other crafts, and what one does not acquire some degree of proficiency in them? But when the farmer gets a set of plumbing tools and puts in his own waterworks, or builds his own chicken coop with the tools about the farm and finds later that the pipes leak, that the foundation of the coop is crumbling and the superstructure is a sight to look at, he forthwith gets a mighty wholesome respect for the skill of a good mechanic.

Ours is just such a craft, although we do not like to be classed in that category. The carpenter pins his hopes in building a nicer and better chicken coop than the unskilled farmer can build, just as our hopes lie in giving a veterinary service that will stand out as distinctly superior to the lay service as the carpenter-built coop stands out over the other. If we do less than this we are falling short of protecting our calling. We are confessing failure.

Quackery Thrives on Ignorance in Medicine

Then there is another feature about this controversy that is not thought of in many of these discussions. The diffusion of medical knowledge among the laity is more helpful than harmful to the man who exploits a scientific brand of medicine. Quackery thrives through lack of medical knowledge among the masses, and a knowledge of it among the masses creates a more wholesome respect for the attainments of those well qualified to practice the art. This is an incontrovertible fact. The owner of live stock who lives in abject ignorance about the simpler facts of medicine is always a hard customer, a doper, a believer in spooks and moon-cures; while the one who has tried out his hand in treating animals from the acquisition of sound facts from sound sources is, with few exceptions, a man who selects a good veterinarian, respects him, and pays him well for his services.

The more the multitudes learn about medical science, the better for the practitioner of sound medicine. Quackery thrives, not so much upon general ignorance as it does upon ignorance about medicine that exist among supposedly educated people.

When a London physician in 1783 said "It is the ignorance and credulity of the multitude in regard to medicine that render them such a prey to the quack. The most effectual way to destroy quackery in any art or science is to diffuse knowledge of it among mankind," he probably did not realize that his wisdom would apply to the situation until today—140 years later. But it does.

Our English colleagues are up in arms over the unrestricted sale of tuberculin to laymen on the grounds that nearly every herdsman in England tests his own cattle, often with fraudulent intent.

ADVANCE OF PREVENTIVE VETERINARY MEDICINE

Preventive veterinary medicine in the United States army is a comparatively new activity, but the results are becoming manifest and in time to come the real worth of the veterinary corps may be expressed in terms of the non-existence of communicable diseases. Injuries of varying degrees of severity will always exist, but it is conceivable that in the future more animals may outlive their usefulness without manifest pathological defects than has been the case in the past, if the veterinary service fully lives up to its opportunities.

THERE IS BUT ONE REASON

"Why have you discontinued the departments in the journal? I am particularly interested in bovine practice and now have to look through the entire journal to get out what I want. Is this another scheme to make us read advertisements?" writes a subscriber.

There is but one reason for this change, and that is that we do not want to make cow-doctors, horse-doctors, pig-doctors or chicken-doctors. We think it is better to make veterinarians and believe that every one in practice should try to be a veterinarian even though his practice is limited to one species of animals. We believe that the success of the specialist depends in a large measure upon the broad fund of knowledge he can accumulate about all domestic animals and not upon a concentration of effort to one animal or one disease. In other words, the specialist who specializes his studies as well as his work soon becomes too narrow to count for much. Then we want to throw the pages of VETERINARY MEDICINE open to everyone and not monopolize the space with the writings of our own staff, for the same reason that we, too, can become narrow, get into ruts, and fall short of supplying the diversified thoughts that go to make up a worth-while publication.

If the plan makes the reader read advertisements, so much the better for him, for the reason that they are carried not only for profit as many believe, but because they contain more information about what the successful veterinarian needs than whole volumes of reading matter. A journal without them would not be a success—you would not like it.

THE VETERINARY CORPS SHOULD BE ENLARGED

In the army veterinary corps elimination has left that branch with but 126 officers, where something like 175 are needed to look after the 50,000 animals and attend to the other duties devolving on the corps, such as meat inspection, school work, and so on. The situation has been met in an imperfect way by reducing the number of officers at the larger stations and by replacing officers with enlisted men at the smaller posts where there are 150 horses or less.

IT'S THE LAST CALL

The one great opportunity the veterinary profession of the United States has to capture the objective so long sought; to win the eternal gratitude of the people; to fix public opinion in the matter of its worthiness; to help maintain justice, domestic peace and national welfare; is that of getting its members into the organized reserves of the army.

The National Defense act affords the veterinary profession the occasion not only to do its bit toward the organization of an efficient national defense, but also to place the individual veterinarian on a higher social plane than he has heretofore occupied. In short, it holds out the choice between remaining in the horse-doctor class or taking a place among the scientific men of the nation. We have until November, 1923, to decide, so join the O. R. C. now. Write the commanding general of your corps area, or the war department at Washington for application blanks and directions. Much depends upon your action.

LABORATORY FACILITIES AVAILABLE FOR VETERINARY OFFICERS

There is not an army station that does not have animals suffering from abscesses, fistulae and kindred lesions. A swab from the deeper structures of such processes, if sent to the laboratory for the corps area would result in the prompt furnishing of a bacterin which would prove highly beneficial in connection with surgical or other interference. A small portion of intestine (ligated at both ends) removed from an animal which had suffered from an intestinal disturbance, might prove of value in the study of the etiology of such cases where the cause is obscure. A swab from a suspicious lesion for the determination of the presence of B. necrophorus would save much time and would prompt the application of specific treatment. In fact, there are innumerable instances wherein the veterinarian may benefit by an early diagnosis or confirmation of a diagnosis, and he should use every facility at hand to bring about intelligent, well-founded conclusions.

MEDICINES ON THE FREE LIST

The new tariff schedule (H. R. 7456) signed by the President, September 21, 1922, provides for the free admission of the following agents of interest to the veterinarian:

Antitoxins, vaccines, viruses, serums and bacterins;

Barks, cinchona or other, from which quinin may be extracted;

Borax

Copper sulphate

Cyanid, potassium cyanid, sodium cyanid and all cyanid salts;

Drugs, natural and uncompounded

Leeches

Nux vomica

Phosphates, crude and apatite

Potassium chlorid and nitrate.

Quinin sulphate and all alkaloids and salts of alkaloids of cinchona

Radium, salts of and radioactive substitutes.

GLANDULAR THERAPY

The clinical use of glandular preparations presents a field of therapeutic action which, at the present time, is of more than ordinary interest to the up-to-date practicing veterinarian. Glandular therapy is not untried nor lacking in clinical value but is being used every day by physicians of human subjects. The veterinary profession has been waiting for some time for some simple, practical, scientific method of applying glandular therapy in the treatment of certain well defined animal diseases.

Drs. W. E. King and J. F. Shigley of St. Paul, Minn., have been engaged in a very intensive study of the endocrinous glands for some time. The scientific papers they have written on the subject of glandular therapy and the special announcement made in this issue regarding synergins or synergistically balanced extracts of glands of internal secretion, for the treatment of some important animal diseases, is exciting interest in the veterinary profession.

In announcing synergins, we believe they have made an innovation that will provide one of the most important groups of therapeutic products ever brought to the attention of the profession.

METHOD OF COMPUTING MORBIDITY AND MORTALITY RATES

Admission and death rates at Army Veterinary hospitals should always be expressed in terms of an annual rate per 1,000 in the preparation of charts. Annual rates per 1,000 are obtained as follows: When the period is one year, multiply the absolute number of cases or deaths that occurred during the year by 1,000 and divide by the average daily strength of command during the year. When the period is one month, multiply the absolute number of cases or deaths that occurred during the month by 12 to get the number that would occur in one year, if the prevalence during the month remained unchanged for a year; multiply this annual figure by 1,000 and divide by the average daily strength for the month. When the period is one week, the procedure is similar to that for one month except that the multiplier is 52 instead of 12, and the product after multiplying by 1,000 is divided by the average daily strength for the week. When the period is one day, use 365 as the multiplier, then multiply by 1,000 and divide by the strength for the day.

SHIPPING FEVER OF CATTLE AND SHEEP

As cold weather advances many cattle and sheep while passing through the large stockyards contract hemorrhagic septicemia, stockyards fever, or shipping fever. The losses from this disease are felt most heavily by those who buy stockers or feeders, although milking cows and sheep may also become affected.

While the bureau of animal industry is endeavoring in every way possible to combat the spread of this disease, it sometimes happens that a shipment of apparently healthy cattle or sheep shortly after arrival in a feed lot will develop symptoms that will cause the owner to believe the animals are affected with pneumonia.

The affected animals as a rule refuse feed. There is quite often difficulty in breathing and coughing may occur. There may be a discharge from the nostrils and strings of mucus may hang from the mouth. The animals lose flesh very rapidly, their abdomens becoming puffed up and the eyes sunken.

Disinfection of stockyards which may be effective temporarily can not be relied upon to protect the animals shipped to farms for feeding. The vaccination of susceptible animals from stockyards is suggested, therefore, as an effective means of controlling the disease. These vaccinations should be made by a veterinarian and only fresh, tested vaccines or bacterins should be used. Such cattle and sheep should not be allowed to mingle with other animals on the farm until 30 days have elapsed.

The United States department of Agriculture has issued a bulletin treating of hemorrhagic septicemia, which will be mailed to those interested on application.

THE MOTIVE POWER THAT LASTS

The truck, the tractor and the motor car are here to stay. On our great wheat farms, the tractor will be used, and on the small wheat farms they will be used also, probably not from an economical standpoint, but for convenience; it is easier to jump off of the tractor and go to the house and eat a meal than to care for some horses first, regardless of cost. In our great wheat state it costs about as much to prepare the ground, sow the crop and harvest it as it is worth when it is sold, yet we will use the most expensive methods available.

The truck fits in. Who would haul a load of wheat to town with a team? Of course, the great majority of our most prosperous farmers are still driving horses for both farm work and to haul with but the truck is a lot nicer. As to the motor car, it has practically eliminated the trotting horse, and not altogether on account of speed and convenience either, for I believe the average man drives not to exceed twenty-five miles per hour, and many a driving horse will go ten or twelve miles per hour easily yet we all think the horse too slow.

Kansas raises one-sixth of all the wheat produced in the United States, more wheat than any other state, yet last year our automobiles, gas and oil we bought for them, cost more than the wheat crop for that year sold for. If the money that was spent thus would have been scattered over the state for horse feed, etc., Kansas would not be wondering about the financial situation but our farmers would have money to loan.

Despite all this the gas machine has done the horse a favor. Many a man that was not fit to have a horse in his possession can now do all his work with gas machines. In this way the horse is escaping a lot of ill treatment in the

hands of people that do not like them. The photograph on page 189 is of an old horse that has been in our family for twenty-four years. My father used to drive him when I was a boy ten years old. I used to drive him when I first started to practice veterinary medicine, but now all he is used for is to do chores, haul wood and as a playmate for the children, which he enjoys very much, and if the snow drifts this winter I will probably use him again to make some calls, but as I think back it surprises me to know that I have used three new cars about as long as they would go good, and then this old horse still ready to go and yet he has been sick but once in his lifetime. This only goes to show the durability of the horse.—Arthur Abendshien, Turon, Kans.

STILL PIONEERS

The veterinarian of today is just as much of a pioneer as his predecessor of thirty years ago, who was handicapped by the fact that no one knew his worth. The only difference is that the old practitioner prepared to exploit horse practice whereas the new pioneer must prepare to show that he can render service to species of domestic animals not previously thought of as veterinary patients. The future of veterinary practice therefore depends now, as it did then, upon the ability to make good in a new field.

RADICAL OPERATIONS FOR NAIL PRICKS MODIFIED

It is no longer thought necessary nor expedient to remove so much of the planter cushion in performing the classical operation for nail punctures involving the navicular bursa. The old operation includes extirpation of the anterior half or more of the frog and cushion to make the invading path to the planter aponeurosis. Early in 1922 Cocu announced to the Societe Centrale (France) that he was performing this operation without sacrificing any part of the plantar cushion, and several trials in this country have already shown the wisdom of these recommendations.

In the new operation preconised by Cocu, the frog and cushion is divided into halves by a longitudinal incision following the median lacuna. The two parts are held apart with strong forceps; the aponeurosis detached from them, or one of them, as required with sage knives; the removal of diseased parts of tendon or bone carried out in the usual way; and the wound sutured with metallic sutures, leaving a place for drainage.

The advantages of this operation are apparent in view of the unsatisfactory cicatrization that always follows the old operation.

HORSE BREEDERS SOLICIT GOVERNMENTAL AID

We, the members of the American Association of Trotting Horse Breeders, assembled in annual convention, respectfully urge you to take cognizance of the following facts:

The United States bureau of animal industry has, as its primary duty, the prevention of disease among animals and the eradication of such disease as may exist among domestic animals in the United States. Notable achievements are to the credit of the bureau in the practical eradication of scabies among cattle and sheep, the elimination of foot and mouth disease, the gradual suppression of Texas fever, and the steady progress that is being made toward extermination of tuberculosis among cattle and hogs and hog cholera in swine. Large sums spent in these lines are amply justified by the results.

Horse Scourges Neglected

In spite of what has been accomplished, there is one channel of infection of live stock that has been overlooked, or practically so. We refer to county, district and state fairs, which annually bring together horses, cattle, sheep and swine from widely separated sections, from farms varying greatly in respect to freedom from disease. The American Association of Trotting Horse Breeders realize this through the great annual loss sustained, through loss of form, and death of valuable animals which they cannot replace, traceable to exposure to contagious and infectious diseases in quarters where horses are kept.

The County Fair and Race Track Menace

At some state and county fairs and race tracks animals suffering from contagious diseases stand side by side, or in the same barns with animals that are free from contagious disease, and even though the healthy animals may escape infection for the time being, a year later, when animals are again exhibited at the fair, healthy animals may be, and are, stabled in the same barns and in the same stalls where diseased animals stood the year before.

It is obvious that disease is certain to spread at a rapid rate under such conditions. Some fairs have made an effort to clean and disinfect

their stables and sheds, but lack of any proper supervision results usually in halfway or superficial measures. This is worse than none: it throws the exhibitors off their guard and they do not exercise as much care as they would had nothing been done.

See Hope in B. A. I. Service

It is apparent to all of us that the elimination of disease centers now existing, at county, district and state fairs and at race tracks, will require united effort under the supervision of the United States bureau of animal industry, which has the technical knowledge and trained men to make possible through cleansing and disinfecting or equipment existing and used at such fairs and race tracks.

Ask for Congressional Appropriation

We therefore urge that you provide for funds in your appropriations requested of the next Congress, which shall be especially applied to enable the United States bureau of animal industry to furnish competent inspectors who shall supervise the cleansing and disinfection of all stables and equipment, including loading pens and chutes, at all sale barns, county, district and state fairs and race tracks, with the understanding that the request for such service shall come from the fairs and race tracks involved, and that they shall furnish all material and labor and bear any other expense that may be necessary, the financial expenditures of the bureau being limited solely to the wages of the inspectors and necessary traveling expense.

Pledge Support

It is further understood and agreed that we will pledge ourselves not to race or exhibit horses at any fair or race track that does not disinfect its stables and equipment under the supervision of the United States bureau of animal industry within three weeks preceding such fair or race meeting—this pledge to take effect as soon as the bureau of animal industry is in a position to furnish such supervision.

(Copy of communication sent to Chief Mohler by the American Association of Trotting-Horse Breeders)

According to Drs. Distaso and Johnson (Tubercle, Jan., 1922), "The condition sine qua non to the infectivity of tuberculosis is the existence of open foci in the lungs. The expired air is the chief vehicle of infection. In order that immunity shall arise the contact must take place at intervals, only small quantities of virus being absorbed. Of all the accessory factors for the spread of tuberculosis, over-crowding seems to be the most important."

VITAMINS

Get This Clear in Your Minds

Vitamin A is found in milk, eggs, corn, carrots and some other vegetables; in cod liver oil and some meats. If lacking, the young stop growing and become prey for disease through enfeeblement.

Vitamin B is found in milk, grains, vegetables and more or less in meat. All rations should contain it. It is indispensable to normal nutrition.

Vitamin C is found in milk, oranges, lemons and fresh fruits in general. It promotes health and vigor and an absence of it causes scurvy.

Vitamin D is related to the mineral content of feeds, especially lime and phosphorus. It is required in the growth of bones. It is needed in rickets, osteoporosis or any demineralization of bones. It is particularly needed by dairy cows.

CARBON TETRACHLORID FOR HOOKWORM IN HUMANS

The value of carbon tetrachlorid in the treatment of hookworm disease in dogs was first noted by Maurice C. Hall (J. A. M. A., Nov. 19, 1921). He found that 0.3 cc. (4 minums) of the drug to every kilogram (2.68 lbs.) of body weight sufficed to expel all hookworms without subsequent purgation—a result he had not been able to achieve with any other anthelmintic. Tests of the drug made in combination with thymol and chenepodium produced equally favorable results. Dr. Hall himself took 3 c. c. (45 minums) of the drug without ill effect.

In view of the interesting results obtained by Hall, the bureau of Anklyostomiasis of the medical department of the colony of Fiji undertook to study the value of carbon tetrachlorid in the treatment of hookworm disease in human beings. During the period from February 14 to May 20, 1922, the drug was administered to 20,000 persons—1,000 Europeans; 6,500 Indians; and 13,000 Fijians. The original examination showed that 89 per cent of the Fijians and 93 per cent of the Indians were infested. This was reduced to 9 per cent by the first treatment as shown by a re-examination of the 823 persons. Even better results are expected when the field staff becomes better qualified.

Dosage

The dose given is 0.2 c.c. (3 minims) to the year of age, up to the age of 15, when the adult dose of from 3 to 4 c.c. (from 45 to 60 minims) is reached. The maximum dose depends on the size of the adult. It may be shown later that much larger doses than this can be given safely.

Children take the drug, in this dosage, better than adults. Three c.c. (45 minims) has been given to many adults over 80 and to one man of 93. The dosage indicated is administered to all ages from 2 years upward.

Method of Administration

The drug is placed on a tablespoon or in a small glass, covered with water, and swallowed. It has a faint smell, reminding one of carbon disulphid, but no taste. When swallowed it may produce a sensation of heat. At first, no preliminary purge was given, and magnesium sulphate was taken if the bowels did not act. Later, it was found that most symptoms were eliminated by a routine dose of magnesium sulphate administered three hours after the drug. To obtain the best results, the drug was given on an empty stomach. A mild laxative on the preceding day proved beneficial when the patients suffered from constipation. Though the patients were advised to rest for the day, they did not do so, and nearly all of them carried on their usual work.

Effectiveness in Removing Parasites Other Than Hookworm

Carbon tetrachlorid, in the dosage here given, is not so effective a vermifuge as oil of chenopodium for removing **Ascaris**, only 40 per cent of them being removed by the Fijian tests. This is regrettable, particularly in Fiji, where there is so high a rate of infestation with this parasite.

The drug occasionally removes **Trichocephalus dispar** in small numbers, but it does not cure the disease. It seems, however, to remove **Oxyuris verimicularis** in large numbers.

Public Support

By no means the least valuable feature of carbon tetrachlorid treatment is the fact that, with it, it is easy to secure individual and public co-operation, as there is much less opposition to a campaign in which this drug is used than to one employing chenopodium or thymol. Rarely is there a refusal to take treatment. The dispensary in Suva, in response to public demand for treatment, opened two months before it had been planned to begin work in that district. In this preliminary period, 2,000 persons were treated at their own solicitation.

Conclusions

1. Carbon tetrachlorid is a vermifuge and vermicide of great potency.
2. It gives little discomfort to the patient.
3. It permits of rapidly treating, at a low cost, vast populations suffering from hookworm disease.
4. Re-examination of the feces of 823 treated patients indicated that one treatment administered to each individual in a given area had lowered the original infection rate of 100 per cent to less than 9 per cent.
5. Clinically, the standard of health of the community is immediately raised.

(Excerpt from the Journal of the American Medical Association, Dec. 16, 1922)

FIELD PEA PASTURE

Field peas have been found a very good feed, not only for swine but also for lambs. Raising these peas has been practiced quite effectively in the San Luis Valley, Colorado, and it has been found quite profitable to purchase lambs to harvest the peas. There has been more or less loss of lambs under these conditions, and although the definite cause of the loss has not been determined it appears to be due to some form of protein poisoning. These losses can be checked if not entirely avoided by feeding the lambs a small ration of grain, such as barley or oats in the morning before turning on the pea lands.

The use of swine has also been recommended for the harvesting of field peas. When hogging off field peas, the best results have been produced by confining the swine on a small area until all the peas have been consumed. Stock pigs from 75 pounds to 100 pounds have been found most profitable for hogging off this crop.

The canvas back duck can fly 130 to 160 feet per second; certain species of hawks attain a speed of 200 feet per second; while the crow, the slowest of migratory birds, flies only 30 miles per hour. The speed of other well-known birds per second is estimated as follows: Jacksnipe, 55 to 65 feet; prairie chicken, 75 feet; doves, 100 feet; red-heads, blue-winged, telgreen-winged, teal and Canada geese, 100 feet.—U. S. Biological Survey.

Editors' Personal Page

"Flock of sheep! Not for us in the West. Out here it's a "band of sheep," and we ain't a goin' to change either."—Montana.

Barrows has pointed out that the progressive races of the world's history have been milk users.

The president of the American Veterinary Medical Association has appointed a special committee to outline the definite policies the veterinary profession should adopt.

In answer to an inquiry as to why the tuberculin test was not more widely used in humans, a distinguished physician at the head of a large hospital said curtly, "Because nearly every one reacts."

It is becoming more and more apparent that the high daily records obtained by special effort in feeding, milking and general care, is not a good reflection of the real value of a cow. The real cow is the one that milks consistently for a year and whose milk secretion responds to feeding like a toy balloon responds to air.

Encourage the building of silos in the corn belt as silage is a convenient and economical feed. It is succulent, a valuable form of roughage for cattle and sheep and good supplementary ration for wintering the farm horses.

Advise your clients who are having such bad luck raising grain to turn more of their attention to live stock as a means of wiggling out of the existing distress. A few brood sows with the proper blood lines, a good purebred bull, or some good-sized mares make a good start, and are not prohibitive in the matter of cost.

The death-rate of Chicago in 1849 was 73 per 1,000. In 1921 it was less than 12 per 1,000. Dr. W. A. Evans (Am. Jour. Pub. Health) says this is a fair estimate of the achievements of medical science during that period throughout the country.

In the hour of crisis I will trade you all the parasites, bellyachers, whiners and theorists for one real man.—DeVine.

Foot-and-mouth disease, Malta fever, contagious pleuropneumonia of cattle, rinderpest and surra, formidable scourges of other countries, have been successfully prevented from ravaging the live stock of this country through the foresight and eternal vigilance of the United States bureau of animal industry.

"It makes me laugh when I read about veterinary practice in the West. Why, in 1900 I treated 1,200 horses; in 1923 I treated three. But I spent $2,600 on a dog hospital and have been able to keep ham and bacon in the cellar ever since," says a New Jersey confrere.

The man who honestly tests his own cows to protect himself and the buying public often puts himself at the mercy of the unscrupulous owners of disease-ridden herds who spread the rumor that he tests his cows because they are tuberculous.

According to an opinion said to be entertained by Chairman Way of the executive board of the A. V. M. A. the new constitution proposed at the St. Louis meeting can not be brought up for adoption at Montreal because both the spirit and the letter of the document were so changed at the December meeting of the board that it could not be legally submitted to a final vote in 1923. The executive board according to reports is opposed to the proposed federation of state associations although the members expressed their approval of this form of reorganization at St. Louis, and voted unanimously for a new constitution containing this provision.

But, the members of the association are entitled to a vote on the document presented by the revision committee and they will be justified in ignoring any interim changes.

Purely Practical

Loss of condition in hogs affected with flu can be prevented by the early use of bacterins.—Koen.

Dystocia in sows is sometimes, if not often, due to lack of lubricating properties of the fetal fluids.—Brown.

Swamp fever may sometimes appear to be cured when in fact it is not cured at all. The apparent cures are due to its exacerbations and remissions.

Two drams of arsenic is safe dosing for the horse and mule, according to J. F. Douglas, of New Orleans, and "a pint of Fowler's will do no harm," he says.

Large doses of salol—heaping teaspoonful—thrown into the mouth of dogs affected with black-tongue will cure them. It can be repeated without danger of toxicity.—Incog.

Maguire reports the eradication of white scour in calves from 8 dairy farms having a total of 112 cows. An autogenous vaccine was made and each cow received three injections at intervals of ten days during the seventh and eighth month of pregnancy, and one injection was administered to each calf when about one week of age.

Swamp fever is very prevalent in the delta district of Mississippi, contrary to the opinion that this disease no longer exists in this country. Three drams of tartar emetic, followed by a purgative, is recommended by delta veterinarians as helpful medication. Others prefer hypodermic injections of sodium cacodylate.

TRY THIS IN THE SELF-FEEDER

℞

Powdered charcoal
Common salt of each.....100 lbs.
Sodium sulphate .....150 lbs.
Sulphur ..... 50 lbs.

Mix thoroughly and feed in the self-feeder.—Duroc Bulletin.

A canine specialist says that cow's milk and cod-liver oil will cure almost all cases of rickets.

The intradermal tuberculin test "gets them" nearly all; the eye test leaves many behind.—Luckey.

The main thing to remember about the intradermal tuberculin test is to see that the delivery of the tuberculin is intradermal.—Luckey.

Bacillary white diarrhea of poultry is one of the few diseases passed direct from the female to its ova and therefrom to the young. Infected eggs mean infected chicks.

All of the best authorities agree that "it is very difficult, in the majority of cases, to make an accurate diagnosis of the diseases of poultry by means of the symptoms alone."

"Try two drams of arsenic every other day for five days and repeat in ten days for your cases of grease heel of horses. Each dose may cause some diarrhea but there will be no harm done," says a Southern colleague.

Canker of the feet of horses, warts, mange and other skin diseases can be promptly cured by the administration of arsenic in sufficient quantities. For curative effects in canker of the feet, the horse should get two drams every second day until five doses are given. Repeat the treatment every 20 days. The third course of treatment cures them.—Douglas.

COLIC CAPSULE FOR HORSES

℞

Ammonia carbonate .....4 drs
Powdered nux vomica
Powdered capsicum
Powdered camphor, of each.....1 dr

Administer at one dose in a No. 7 capsule. Reeds.

Veterinary Corps News

MILITARY VETERINARIANS BANQUET AND ORGANIZE

Thirty-two veterinarians of the United States army met at social gathering and banquet at the La Salle Hotel, Chicago, on the evening of December 7, in response to invitations sent out from the 6th corps area headquarters to all officers of the veterinary corps of the regular army, veterinary officers reserve corps and discharged veterinary officers on duty or residing in the area, and to those officers who were visitors to Chicago during the veterinary meetings of that week.

Lieut. Colonel W. P. Hill presided, acted as toastmaster and stated the purposes of the meeting. Colonel Keck, in charge of the reserve organization in the area spoke at length on the plans and status of the national defense under the existing laws and Major Christie, commanding officer of the 86th cavalry division, explained how the laws will operate in the matter of developing a veterinary service.

Dean White, of the Ohio State University, who is a colonel in the veterinary officers reserve corps, delivered the chef d'oeuvre of the occasion, relating his experiences with the veterinary service of the late war from the time the historic advisory board was convened in 1917 until the day of demobilization two years later. He touched upon the many conditions of despair and comedy that entered into every situation through our state of unpreparedness and advised young veterinarians to enter the reserves to forestall a repetition of the misfortunes that befell the nation during the war and for which we shall continue to pay dearly for years to come.

Other addresses were made by Drs. N. S. Mayo, Merillat of the reserves corps and by Capt. MacConachie, late of the Canadian and British veterinary services.

The exercises ended by the organization of the Society of Military Veterinarians. W. P. Hill was chosen temporary chairman and L. A. Merillat temporary secretary, with directions to take steps toward effecting a permanent association.

TARDY JUSTICE TO VETERINARY OFFICERS

The Surgeon-General has submitted to the War Department drafts of proposed legislation to remedy the discrimination against officers of the Veterinary and Dental Corps in the Army Elimination bill, enacted last June. The proposed legislation will give dental and veterinary officers time credit upon retirement for all services in the army, instead of merely "commissioned service" as the law now reads.

SHOWING THE WAY

At a polo tournament held recently at Fort Oglethorpe, Georgia, four teams participated, one from Fort Benning, one from Fort Bragg, and two from Fort Oglethorpe. The final was won by the Fort Oglethorpe Yellow Jackets upon which team Lieutenant S. Kielsmeier, V. C., was a substitute player.

Lieutenant Kielsmeier also won third place in the Officers' Jumping Class, the conditions of which were four jumps, two post and rail, two log and triple bar, all 3½ feet high. Officers limited to one entry. Performance 75 per cent; Form 25 per cent.—Vet. Corps Bul.

AT THE ARMY VETERINARY SCHOOL

At the graduation exercises at the Army Veterinary School at Chicago, last month, the following veterinary officers were graduated: Capt. J. R. Underwood and 1st Lieuts. Mott Ramsey, F. W. Shinn, S. G. Smock, J. R. Sperry and H. L. Watson.

The new class, which began work on January 15, comprises the following members: Maj. Burt English, Ft. Sheridan, Ill.; Capt. Jacob E. Behney, P. and B. Headquarters, Kansas City, Mo.; 1st Lieuts. Harry E. Van Tuyl, Ft. Myer, Va.; Ralph B. Stewart, U. S. D. B., Ft. Leavenworth, Kans.; Paul R. King, Chicago general intermediate depot, and Lloyd C. Ewen, Ft. Ethan Allen, Vt.

TRANSFERS AMONG VETERINARY OFFICERS

Major William A. Sproule from Ft. Bliss, Texas, to the Hawaiian department.

Major George A. Hanvey from the Hawaiian department to Continental United States for instructions.

Major James R. Shand from Ft. Oglethorpe, Ga., to Ft. MacPherson, Ga.

1st Lieut. Burlin C. Bridges from Purchasing and Breeding headquarters, Ft. Reno, Okla., to Quartermaster's Intermediate depot, Ft. Reno, for duty as depot veterinarian and as headquarters' veterinarian, Purchasing and Breeding headquarters, Ft. Reno.

1st Lieut. Harry L. Watson from temporary duty at Army veterinary school, Chicago, to Ft. Oglethorpe, Ga.

1st Lieut. James R. Sperry from general intermediate depot, Chicago, to Ft. Hamilton, N. Y., for duty as station veterinarian.

RECENT PROMOTIONS IN THE VETERINARY CORPS

Capt. Herbert S. Williams to Major.

Capt. S. Williams to Major.

Capt. Alfred L. Mason to Major.

2nd Lieut. Jack G. Fuller to 1st Lieutenant.

Col. Wm. V. Lusk has been found by an army retiring board incapacitated for active service and his retirement has been announced.

Major Henry W. Peters has been found by an army retiring board incapacitated for active service on account of disability incident thereto and retired.

Lieut.-Col. Coleman Nockolds has been found by an army retiring board incapacitated for active service on account of disability incident thereto and retired.

HOW MANY WARS HAVE WE FOUGHT?

We look upon the United States as one of the most peaceful of countries and yet the records of the war department show that since 1775 we have had more than one hundred wars; that is, that it has been called to active service on an average of about once for every year and a half throughout our national existence.

If we exclude internal insurrections such as the Wyoming insurrection, the whisky insurrection, Shay's rebellion, and also the Indian wars and the Civil war, we still find the United States having engaged in the following wars:

1775—The Revolution; 1798—War with France; 1801—Tripolitan War; 1812—Great Britain; 1846—Doniphan's Mexican Expedition; 1846—Mexican War; 1846—New Mexican Expedition; 1859—San Juan Imbroglio; 1867—Mexican Border Indian War; 1891—Mexican Border Expedition; 1898—Spanish-American War; 1899—Philippine Insurrection; 1900—Boxer Insurrection; 1912—Nicaraguan Expedition; 1913—Haitian and San Domingo; 1914—Vera Cruz; 1916—Punitive Expedition in Mexico; 1917—War with Germany.

Thus, during the last twenty-four years, the United States has engaged in eight foreign wars or one for each three years.

Dr. J. L. Sullivan, formerly a veterinary officer attached to Veterinary Hospital No. 9, B. E. F., exhibiting a mule from which he removed a time-fuse weighing 14 ounces. Dr. Sullivan now practices at Woodstock, New Brunswick.

Infant Mortality Among Live Stock

By Maurice C. Hall, Associate Editor

IN a recent conversation between Dr. Sam Buckley and the writer, it developed that we were both deeply impressed with the large and unnecessary losses sustained by the livestock industry in the form of deaths of young animals. It seemed to us that the subject had been insufficiently stressed in the past and that additional efforts should be made to focus attention on this infant mortality among live stock with the expectation that the same benefits would follow as have followed the focusing of attention on infant mortality among human beings. The writer has from time to time called attention, in articles and addresses, to the losses among young animals as a result of parasitism, but the subject warrants reiteration and emphasis.

Infant Mortality Among Human Beings

Up to a comparatively short time ago, it was a very common thing for families to lose in infancy or early childhood half of the children that were born. These losses were regarded as more or less inevitable, as dispensations of what has been termed "a wise and unscrupulous Providence." That attitude is probably the common and prevalent attitude of the great majority of mankind throughout the world today. But in the United States, Europe and some other portions of what we are pleased to term the civilized world, there has been an effort of late years to prevent this tremendous waste of human life, and that effort has met with a large measure of success. Sanitation has done much to protect the infant from contagious and infectious diseases, hygienic measures have served to further growth and development, and the resultant decline in the death rate among infants under these conditions has been one of the striking achievements of human medicine in the last century.

Pearson has divided the line of a life table into the component parts of infancy, childhood, youth, middle age, and old age. To the conclusions suggested by such a division he has applied the following simile: We may conceive of five Deaths attacking with different weapons the procession of humanity as it crosses the Bridge of Life. The first Death is a marksman of deadly aim, concentrated fire and unremitting destructiveness; he kills before birth as well as after, and may be regarded as beating down young lives with the bones of their ancestors. The second Death aims at childhood and his extremely concentrated fire may be likened to that of a machine gun; only because of the concentration of the fire are we able to pass through it without appalling loss. The third Death shoots at youth and has a not very deadly weapon or great accuracy; he may be regarded as using a bow and arrows. The fire of the fourth Death is slow, scattered and not very destructive, similar to that of an old-fashioned blunderbuss. The last Death plies a rifle; no one escapes his shots; he aims at age, but sometimes hits youth. The aim of all is perfectly regular in the mass, if unpredictable in the individual case. Raymond Pearl and Henderson do not entirely agree with this analysis, but Pearl concedes that it demonstrates that deaths do not occur chaotically in respect to age, but in a regular manner which may be represented by a mathematical function of age.

Why and When We Die

Pearl has noted that the time at which natural death of the soma occurs is determined by the combined action of heredity and environment. Its inherited constitution gives it a specific longevity, but this is modified by the impact of environmental forces, chiefly by determining the rate at which the inherited life endowment is used up. He states that men behave like eight-day clocks; some are fully wound up and run the full eight days; others are only half wound up and only run four days; others are wound up for eight days, but fall off the shelf or are stopped by sand in the works within that time. Only an animal with an inheritance of potential longevity can live long; with such an inheritance, however, it may not live long, owing to the many environmental conditions which may cause death.

In his consideration of the causes of death, Pearl quotes Seneca's dictum: "Nascimus uno modo multis morimur"; We are born in one way, we die in many ways. The causes of death may be anything in the realm of pathology, as bacteria, animal parasites, trophic disturbances, trauma, etc. Statistics show that more than half the deaths among persons in the United States, England, Wales and Brazil are due to diseases of the digestive and respiratory systems. It may be noted in passing that

the digestive system is the one most often infested with animal parasites in the case of man and of the domesticated animals. In the first year of life, it is the alimentary system which breaks down; from the ages of 1 year to 60 years, it is the respiratory system which is responsible for many more deaths than any other bodily system.

Losses Among Live Stock

Leaving out of consideration the deaths of animals in the abattoirs, which from our homocentric concept of things may be regarded as their legitimate destiny, the deaths among our live stock are principally in terms of chicks, poults, kittens, pups, little pigs, lambs, calves and colts. The young animal leaves the warm shelter of the maternal uterus and is cast out on the cold, hard world to fend for itself. It meets the attack of pathogenic organisms of all sorts and must promptly build up any lacking resistance and immunity. It is subjected to temperature variations and trauma previously unexperienced. Other conditions being equal, the weaker animals succumb where the stronger survive. But conditions are not always equal. Stronger animals, of great potential value to the live stock owner, may meet with greater physical insult and succumb where the weaker and less profitable animal may survive the lesser physical insult to which it is exposed.

This fact is not adequately appreciated by the stockman or the veterinarian. The young animal dies before it has established a reputation for strength and usefulness which would give it value and entitle it to serious consideration. Its loss is taken philosophically with the reflection that this young animal never amounted to much anyway. Our attitude is that of the German card player in a story current during the Great War. According to this story, four German soldiers were playing cards in the trenches. The first bid a hundred, the second 200, the third 300, and the fourth 400. A moment later a shrapnel took off the head of the fourth soldier. One of his companions picked up the dead man's cards, looked them over, and remarked: "O well, he wouldn't have made it anyway." The stockman and veterinarian too often look on the death of the young animals in this way. It wouldn't have made it anyway. It is a convenient explanation for the failure of the stockman to call in a veterinarian or for the failure of the veterinarian to save the animal.

Parasitism and Youth

The writer has previously pointed out in an article in this journal (VETERINARY MEDICINE, November, 1921) that a mass of accumulating evidence shows that young animals are more susceptible to infestation with parasites than are older animals; they are more often and more easily infested and suffer more from a given number of parasites than do older animals. Chicks and poults die of gapes; mature chickens rarely have gapeworms and are very difficult to infect with these worms, and mature turkeys carry the worms with little evidence of discomfort or bad effects. Kittens commonly have large numbers of ascarids and many of them die from such infestations. Pups and fox pups are similarly susceptible to ascariasis and suffer severely from it. Pagels has recently stated that the greatest number of ascarids occurs in dogs 41 to 50 days old. From the fifty-first to the seventieth day, many ascarids pass in the feces, and at the age of 71 to 90 days the pups have an average of 15 to 17 ascarids. Hall and Wigdor have reported the natural occurrence in a pup of 2054 specimens of **Belascaris marginata.** We know that ascarids are the cause of great losses among little pigs and that after the age of 4 months these animals are very difficult to infect with ascarids. Little pigs, lambs, calves and colts are especially susceptible to lungworm infestations and succumb to this disease much more often than do mature animals of the same species. The losses reported among cattle as a result of infestation with **Cooperia punctata** have only been among calves up to the present time. Kittens, pups, lambs and calves suffer more from hookworm disease than do older animals, and among persons it has been found that hookworm infestation of children results not only in a physical retardation but in a mental retardation of growth.

Unthriftiness Is Often Parasitism

Unfortunately the clinical picture of worm infestation is that of an unthrifty animal. The wormy animal is the "runt" in many cases. Now "runts" are usually due to poor breeding, poor feeding or parasites. If poor breeding and poor feeding are excluded as the causes of runtiness or unthriftiness among young animals, parasitism should always be suspected—it will almost always be present. We must abandon our present attitude of indifference to the losses among our infant live stock.

Here is the source of a large loss to the live stock industry. The difference between the number of live animals born and the number of animals raised to maturity or at least to marketable age and condition, represents a loss which is the difference between a profitable business and an unprofitable one. The saving of this loss will mean more prosperous agriculture, a better live stock industry, more business for the veterinarian, and a larger meat supply, with all that should imply in the way of lower prices to the public. It is a saving that does not involve additional expense or investment, except the expenditure of care and thought, and represents a saving in sires and dams, in feed for sires, dams, fetuses and young animals, and in equipment and overhead costs for these animals. Dead animals on the farm represents a dead loss, and one which must be enormous in the aggregate.

What We Must Do

This loss must be stopped. To stop it is largely the function of the veterinarian. He can initiate this movement by educating his clients, by his professional services in pointing out the way and in applying appropriate measures for control of these losses. In this matter the experience in the control of swine ascariasis is an illuminating example. Prophylaxis is largely a matter of sanitation. We have preached sanitation on general principles as a control for diseases in general for many years. The results have been slight, as might have been expected, since people do not do things on general principles. Psychology teaches us that we do things for specific reasons. The experience in the control of swine ascariasis shows that this psychological principle is sound.

The system of swine sanitation was proposed to control one disease and was adopted for that one reason. It was found that this system resulted in the control of many diseases, as might have been predicted. We must assume that people in general display no great amount of mental activity and furnish them not more than one idea at a time. One idea is two more than most persons have at any one time. We must be specific in giving our one reason for sanitation or other measures, and must give specific measures. Here is the explanation of the success of the swine sanitation system in actual practice. It was proposed for one reason to control roundworm infestation in pigs, and it was proposed with definite measures for its application, i. e., that the farrowing pens be scrubbed with hot water, soap and lye, that the sows be scrubbed clean, with especial attention to the udders, that the sow and pigs be moved in 10 days to a clean field, previously sown to a forage crop, and that they be kept there with plenty of good feed and water, apart from other pigs, for at least four months. The results have been brilliant. It has been found, as stated above, that the system has resulted in the control to a large extent of other troubles, among them bull nose, mange, hog cholera, etc. But it would probably have been a mistake, perhaps a fatal one, to have advocated the system for all of these things.

Save the Babies!

My old teacher of psychology, Dr. E. G. Lancaster, gave us three rules for raising babies: Give them plenty of nourishing food; keep them reasonably clean; and leave them alone. Some such program must be adopted for the protection of our live stock babies. Taking for granted the sound breeding which is necessary for a good heredity to ensure longevity and potential good health, we must have good feeding to ensure growth and development. This is well known. It is not so well known that animals must be kept clean, at least as regards their surroundings. The young animal deserves coddling in this respect. It must be kept away from contaminated pastures, filthy hog lots and other surroundings where it is practically certain to acquire bacterial diseases and heavy worm infestations. The best pastures are not always the safest. The wash of worm eggs, manure and fine soil from hillsides commonly makes the valley pasture the best from the standpoint of abundant feed, and also the worst from the standpoint of danger from worm eggs and larvae.

That animals, as well as babies, should be left alone is something that deserves consideration in the live stock industry. Babies should be left alone to grow and undergo normal development through infancy, to avoid shocks to a nervous system that is not yet accustomed to the many stimuli, often harmful, of modern life. In the case of our animals, it is well known that abuse of young animals ruins the disposition and makes animals hard to handle in later life. Every dog owner and horseman realizes this. It is probably a principle with general application to all live stock. A certain amount of handling is necessary. Beyond this

it is probably advisable to leave young animals alone.

It would be well for the veterinarian and the stockman to adopt the slogan of "Save the babies!" This slogan has become established in civilized countries with astounding results in diminishing mortality among the human young. It may be expected to accomplish the same results with our young live stock. Wild animals may be left to work out their salvation along the lines of the survival of the fittest, but in our live stock industry we are not concerned with raising the toughest animals. If we save the babies from their many enemies—hunger, cold, heat, worms, bacteria and other ills—the adult animal will take rather good care of itself by adjustments to its surroundings and pay returns as mature and profitable hens, turkeys, cats, dogs, swine, sheep, cows and horses.

Treatment for Lice on Domestic Animals

It is well known that lice are usually more abundant or more troublesome, at least, in cold weather than in warm weather. They appear to be most prevalent on horses in late winter or early spring. The season at which they are most common is the season when the most effective treatment, dipping, is most difficult to apply, owing to the danger of chilling a wet animal with consequent bad effects.

Autumn Treatment Advised

While this difficulty may be overcome by the use of dips in warmed enclosures or by thorough drying of an animal after dipping in winter, the actual alternatives, for the most part, are to use palliative measures, such as the application of louse powders containing naphthalene, pyrethrum powder, etc., which serve to mitigate the lousiness, or to be forehanded in the matter and eradicate the lice by the use of suitable dips at suitable intervals in the fall in order that animals may go through the winter free from lice, relieving the stockman of the bother of handling lousiness at a time when it is most difficult to handle. This is a matter which deserves emphasis: Stock should be dipped for lice in the fall before cold weather sets in. The nature of the dips which should be used in the case of cattle has been discussed recently in this journal (VETERINARY MEDICINE, November, 1922), and the same dips may be used in the case of horses.

Sodium Fluorid for the Biting Varieties

As noted in that article, biting lice constitute a special case. These lice, which have a head bluntly rounded in front, as opposed to the sucking lice which have a more or less pointed head, may be eradicated by the use of a single application of sodium fluorid powder, taking care to apply the powder lightly and to avoid getting it on the mucous surfaces. Sodium fluorid will kill biting lice on any animal from horses to chickens, apparently, as it has been effective in the case of all biting lice on which it has been tested. It is not effective against sucking lice. As all the lice on chickens and other poultry are biting lice, sodium fluorid is the best treatment known for the control of lice on these birds. It is, of course, necessary to treat all the animals in a flock or herd at the same time, if reinfestation is to be avoided. Directions for the use of sodium fluorid in the case of cattle, and the same applies to horses, may be found in the article referred to before. Chickens may be treated by putting pinches of sodium fluorid on the neck, back, under the wings and vent, and along the breast. Dogs should be prevented from licking after treatment with sodium fluorid, as this chemical acts as an irritant to mucous surfaces. Hall and Wigdor have reported the death of a 9-kilo dog on the fourth day after the oral administration of 1 gram (15 grains) of sodium fluorid, the animal showing severe gastro-enteritis, with some hemorrhage, and an acute nephritis.

Volatile Agents, Oils and Fats

Aside from the use of eradicative dips and palliative powders, lice may be controlled to some extent by the use of such volatile substances as methyl alcohol, or fatty substances, as oils, horse fat, etc., but most of these substances are objectionable from the fact that they are toxic to the animal or the operator, or they are messy or expensive or more or less unavailable.

Dips for Sheep

For dipping to eradicate lice on sheep, the substances which have been found effective in field tests are coal tar creosote, cresol, arsenical dip, and 0.07 per cent nicotin with 2 per cent flowers of sulphur, dipping twice at a 14- to

16-day interval. Arsenical dips are, however, somewhat too poisonous to be entirely satisfactory for use on sheep.

Petroleum for Swine

For lice on swine, one may use in winter hand applications of crude petroleum, or of equal parts of cottonseed oil and kerosene, or of kerosene and lard in the proportion of one-half pint kerosene to 1 pound lard. For dipping, use crude petroleum or coal tar creosote.

Summary

The situation as regards lice control may be summarized as follows:

1. Eradicate lice by repeated dipping in the fall while the weather is warm in order to avoid heavy louse infestations in winter and the work of control under unfavorable weather conditions.

2. Biting lice may be controlled at any season of the year by the judicious use of sodium fluorid powder.

3. If sucking lice are present in winter, infested animals may be dipped if thoroughly dried or dipped under shelter; or the lice may be controlled to some extent by the use of suitable powders as palliative measures, or by the use of volatile or fatty or oily substances.

CRUDE OIL EMULSION FOR DIPPING CATTLE

(E. Startz, Bul. Mont. Livestock Sanitary Board)

The mixture recommended is made with: Resin 4 pounds; lye 1½ pounds; crude oil 35 gallons and water to make 100 gallons.

The lye is dissolved in three gallons of water, the resin added, and the whole boiled into solution. The solution is dark brown. Two gallons of crude oil is then put into a 50 gallon barrel, the hot resin and lye solution poured in and agitated briskly until the mixture becomes as thick as jelly. Another gallon or more of the crude oil and a quart of water can now be added and mixed by agitation. This is continued until oil and water has been added to make up 50 gallons of emulsion. This is a 70 per cent solution of crude oil, in the form of a homogeneous emulsion.

The homogeneous emulsion is emptied into the dipping vat and reduced to a 35 per cent solution by the addition of water.

The solids of exceptionally hard water should be precipitated with lye and sodium carbonate. Moderately hard water will answer well enough without such treatment.

To Test the Solution

The amount of crude oil contained in the emulsion may be tested by a simple process: A test tube is marked into two, five cubic centimeters spaces at the bottom and 10 one cubic centimeter spaces above. To test the solution 10 cc. of the emulsion is placed in the tube, five cubic centimeters of denatured alcohol added and followed by five cubic centimeters of 50 per cent hydrochloric acid. After shaking the oil will rise at the top. Each cubic centimeter of oil thus raised represents 10 per cent of oil.

LOUSE POWDER

℞

Sodium fluorid .....1 part
Wheat flour .....5 parts

Mix and use with a shaker and work into the hair. Three ounces of the mixture should be regarded as the maximum dose for a large domestic animal.—Hall.

LOUSE SPRAY

℞

Sodium fluorid .....4 drs.
Water .....1 gal.

Mix and use as a spray for lice in cattle.

Sodium fluorid, according to Hall, is the best known agent for treating animals infested with biting lice.

Sodium fluorid, although a highly potent parasiticide for lice, must be used with care. It must not be put on, or near, mucous membranes, because it may cause severe inflammation.

The advantage of crude oil emulsion dips is that it obviates regathering the herd for further treatment, and besides it can be used cold even in cold weather and the solution does not have to be changed but can be used as long as it is kept up to the required strength by adding more of the concentrated solution. It kills ticks, lice, scab mites and their eggs.

White snake root poisoning experimentally produced in horses is characterized by dysphagia like that of botulism.—R. A. Craig.

Auto-Vaccination and Auto-Pyotherapy in Follicular Mange of Dogs

By Drs. Antoine and Liegeois, Brussels, Belgium.

(Free Translation from Annales de Medecine Veterinaire, December, 1922).

Follicular mange, known also under the names of phlegmonous dermatitis, fistulous dermatitis, impetigo, suppurative acne, and follicular acne of the dog, is an affection whose treatment, owing to the peculiar character of the lesions, is often uncertain and always of prolonged duration.

Follicular mange is essentially a chronic process consisting of an inflammatory suppuration of the hair follicles and sebaceous glands. It is therefore a folliculitis and also a perifolliculitis, since in the dog there is a special anatomical disposition of the follicles to group together around one opening, explaining the painful and extensive nodular swellings of the skin.

The points of localization vary; sometimes the acne is generalized, whereas, in other cases it is limited to places subjected to injury, or to the interdigital spaces.

The lesion is a little abscess, lodged in the follicle. The abscesses extend, fuse with others, and give the impression of a phlegmonous dermatitis; or of a necrosis. The pustule, on pressure, discharges pus mixed with blood.

The treatments instituted are all etiologic in character (antiseptic) but their local action on the area applied does not prevent the development of new lesions around these foci. Furthermore, their effect, sometimes too transient. is not sufficient to combat the living cause which, in effect, continues. Also, should not the treatment be specific, general and continuous as well as etiologic? These three conditions seem to be realized by an auto-vaccine or auto-pyovaccine that is specific by its origin, general by its mode of intervention and continuous by its action.

The Different Causes

The different causes of acne, admitted by most authors, are of variable importance: some prepare the soil, others provoke the lesion, while finally, others determine it. The first are predisposing causes. Certain breeds of dogs, (hunting dogs, mountain dogs, watch dogs) are more exposed. Certain parts of the body, (topographic causes) are attacked by preference, like those exposed to friction from the muzzle or to repeated contact with the hard ground.

The actual causes are simply traumatic, not merely a trauma of violence but one that is slight, moderate and repeated such as friction of the forehead from a muzzle, and pressure from lying down too much. Then there is also the parasitic cause: the presence of an agent lodged in the follicle but which alone is not capable of causing suppuration—the Demodex folliculorum.

The determining cause, the only real one, consists of purulent infection of the follicle with various microorganisms. Cuille appears to have identified them as a streptococcus and a bacillus resembling the bacillus of necrosis.

Pure Cultures Obtained from Lesions

We have made a systematic research of the causative microorganism on our subjects. After cleaning up the areas, pus was pressed out of the acneic buttons and inoculated in agar. The contents of three or four buttons were taken from each dog and inoculated into separate media. In each case we obtained growth in 24 hours. These growths like the acneic pus were Gram positive and contained masses of staphylococci. All the cultures obtained were pure. We considered therefore that the causative agent was the albus.

Auto-vaccination and auto-pyovaccination may be considered as two modifications of the method that consists of inoculating an antigen rendered non-pathogenic artificially with the view of producing defensive reactions against the microorganisms in the body.

AUTO-VACCINATION

In this method the antigen is pure. That is to say, isolated from the other elements of the pus and consists of a microbian emulsion of the same strain as those to be combatted. This relation makes the treatment rigorously specific.

Preparation of the Auto-Vaccine

With the pus obtained as mentioned above, three or four agar slants are inoculated. After

incubating for 24 to 36 hours at 37° C., the growths are scraped out and the microbian mixture diluted with sterile normal salt solution in a test tube. The tube is filled half full and the mixture added and agitated until it has reached a degree of cloudiness that prevents the eye from seeing the graduation marks on the other side of the tube when held toward the light. It is then divided into ampules and heated in a water bath for one hour at 62° to 65° C. The vaccine is now ready for use, but it is prudent to test its sterility by reinoculating a slant. If there is no growth in 24 hours the injections can be commenced. In this manner the vaccine is ready in 48 hours. The product thus produced is an autogenous vaccine; and may be substituted by monovalent stock-vaccines produced from germs isolated from different patients or by polyvalent vaccines, but we find that these have not the rigorous specificity of the auto-vaccine.

Mode of Administration

In human medicine auto-vaccines are generally administered subcutaneously; the intravenous route having been used only for a rapid action. The dose must be based somewhat upon the general health of the animal, and the extent of the lesions. It is preferable to begin with small doses and quit augmenting them as the reaction suggests. We begin generally with ½ cu. cm. (8 minums) and double the dose in 48 hours, if no elevation of the temperature ensued. The injections are then given every three or four days. An average of three to four doses is sufficient to bring the desired results.

The Reactions

A characteristic negative phase is observed immediately following the injections in the form of a recrudescence of the general symptoms (fever) and of the local symptoms (congestion and suppuration are more pronounced). The negative reaction may last six days. Its intensity varies with the dose, and also with the condition of the patient.

Dogs in very bad condition with extensive lesions may die. It is this negative reaction that makes the method a delicate one. At this moment, the body is put to a disadvantage as a consequence of introducing a massive dose of antigen, but this disadvantage is transient because the organs of defense are whipped into action, and when these come to the rescue, the positive phase begins to be characterized by both general and local amelioration.

The reaction although definite may not always be the same, because matters do not always pass off in the same fashion; one of the other of the phases may be predominant or even unique. Much depends upon the dose employed, the extent of the lesions, and the general condition of the patient. It is also well, before intervention, to verify the action of the heart and of the liver and kidneys, since insufficiency of these would constitute a contra-indication.

Mode of Action

Only presumptions can be made on this subject. As Fraser has said, opinions on the value of such treatment must be based on clinical impressions and not upon experimental facts. Scientifically, the curative action is explained as follows:

(1) The specific action of the auto-vaccine This, constituted of the microbes and their toxins, play the role of an antigen, which, introduced into the body excites the formation of specific antibodies against that antigen. This immunizing process is in itself specific, but the "immunity" reaction does not immediately follow the "antigenic injection"; and the delay in the reaction does not run parallel with the rapid clinical reactions, not to say sudden ones. That is to say, aside from the immunizing process, there is a preceding process that is characterized by its rapidity of action.

(2) This process is what is conveniently called the antigenic shock. In injecting the bodies of microbes coming from scrapings of a culture, heterogenous proteins are introduced into the body that effect the colloidal equilibrium of the humors (Sergent). This shock is not specific and can arise from any antigen whose colloidal state has not the same equilibrium as that of the body humors, and it can manifest itself in different ways (dyspnea, convulsions, gastro-intestinal disorder), but its constant trait is suddenness. This clinical result is however only manifested when the antigen is brutally introduced into the body as in the case of intraveneous injection.

The absence of clinical reaction (in the case of subcutaneous injection) does not exclude the possibility of a humoral reaction. This action, although obscure, is nevertheless sudden and active on the morbid process it is designed to combat; and consists of a "hematic crisis" (reversal of the leucocytic formula, rarefication of the corpuscles) that exerts a beneficial action

prolonged by the specific immunizing action of the vaccine.

Observations

1. Gordon setter. Generalized case of demodectic mange. Received three injections of 1 cu. cm. each. Passed a noticeable negative phase. Several days later all the pustules were dry, and a careful examination failed to disclose a single one left. A month later new pustules, quite numerous and fairly well distributed, reappeared. The injections were repeated and the patient turned over to the owner cured without any further treatment.

2. Mastiff. Generalized acne, very grave, as a consequence of demodectic mange. Two injections of 1 cu. cm. of the auto-vaccine, brought on a presistent negative phase characterized a recrudescense of the suppuration and a fusing together of the cutaneous lesions. The conditions of the patient becoming lamentable, the owner destroyed it.

3. Fox terrier. Generalized acne. Presented spots and patches over the whole body. June 28: Injection of 1 cu. cm. Slight negative reaction during two days. Temperature 39.3° C. (103° Fahr.). June 30; Most of the pustules were dry; only a few isolated ones remained, among which was quite a large collection of pus on one of the limbs. July 3; New injection of 1 cu. cm. Febrile reaction (39.5° C.) The temperature lasted several days and a little abscess formed at the point of injection. The sterility of the vaccine had not been verified by a retest. July 6; Pus collection on the limb is opened leaving a deep cavity in good state to cicatrize. The number of pustules were diminishing; only two persisted in the cervical region. These yielded to an injection of 1 cu. cm. on each side of the thorax. July 10; All the pustules had disappeared, and now were represented by dry scabs which fell off rapidly. July 14; Several rare pustules reappeared; injection of 2 cu. cm. of the vaccine. August 20; Dog completely cured since last injection.

4. Pointer. Same diagnosis. October 14: Injection of ½ cu. cm. Reaction slight. October 18: Injection of 1 cu. cm. Slight reaction. October 30: Pustules all gone. Only one patch on the stifle remained. November 8: Several new pustules reappeared on the face. The treatment was not continued through no fault of ours.

AUTO-PYOTHERAPY

This method appears more practical than the foregoing for general use, in view of the many indications (lymphangitis of equines, etc.) The principal is the same as that of the other, but instead of using germ antigens, globules of pus are utilized.

Preparation: Pus is collected from 10 or more pustules in a test tube. This is mixed and agitated with 2 cu. cm. (30 minums) of ether and set aside for 24 hours, agitating occasionally. The ether is then left to evaporate and the residue dissolved in 2 to 3 cu. cm. of normal salt solution. On agitation the dose is ready for administration.

Medication. Same as in auto-vaccination.

Mode of action: Aside from the specific immunization and the shock, (the negative phase) the reaction is complicated by the new element: the pus. The proteolytic ferments liberated by the pus intervenes by clearing up the lesions.

Observations

1. Greenland dogs. Acne due to demodectic mange. Pustules on the head and limbs. Four injections of 2 cu. cm each in 18 days cured all the pustules.

2. Beagle hound. Impetigo. One injection was sufficient to make all the lesions disappear.

3. Cur. Acne due to demodectic mange. Three injections, of which the first was 2 cu. cm. and the other two 3 cu. cm. of the pyovaccine. The dog was in bad shape and died before results could be observed.

CONCLUSIONS

1. These methods of auto-vaccination and auto-pyovaccination are precious adjuvants in the treatment of pyodermatites and in particular impetigo and follicular mange of dogs. (Auto-vaccination is consecrated in the treatment of furunculus of man.)

2. These methods cannot supplant all old treatments because they do not apply to all cases. They constitute only a new therapy to use as adjuvants when no headway is being made by ordinary treatments.

3. From the practical point of view auto-pyotherapy is without doubt the easiest, but we reserve as much as possible our preference for the auto-vaccine because its preparation is more accurate and its action less complex.

Pitfalls in Tuberculin Testing

By J. L. Tyler, Associate Editor.

UNDER the above heading many things might be mentioned, but to the writer the greatest of all is the possibility of overlooking and passing a tuberculous animal, the detection of which is the only excuse for making the test and this may happen to the most conscientious and capable operator.

The Four Chief Pitfalls

There are at least four causes or conditions which might make this possible and perhaps more. They are: first, a tolerance to tuberculin from frequent testing and large doses; second, the so-called "plugged" cow; third, the tuberculous cow, which, while affected, does not react at every test, and fourth, the animal whose lesions are so extensive that no amount of tuberculin seems to affect them.

Tolerance to Tuberculin

To dispose of the last first: On snap judgment one might say that this animal can be detected on physical examination. I wish to say that this is not always the case by any means, although I firmly believe in the value of a thorough physical examination. Have you forgotten the prize steer at the International in Chicago a number of years ago, that swept everything before him in the prize ring, being declared a grand champion, sold for a large price, and upon slaughter was found to be so badly affected that his carcass was tanked?

Don't be too confident of your skill in physical diagnosis.

As to tolerance to tuberculin being acquired, I have no doubt, especially where large doses are administered every six months or a year, or perhaps oftener, as happens when cattle change hands frequently, and are sold subject to a 60 day retest.

In a recent article by Henry W. Turner, of the Pennsylvania bureau of animal industry, he repeatedly warns of this danger and his warning is timely. I also view with alarm the tendency of some inspectors to use enormous doses of tuberculin, 10-20-30 cu. cm. at a dose. This practice if continued will nullify subsequent tests and be the cause of much harm.

"Plugging" Cows

Number two is a live question here in California. Cows are frequently "plugged" by being given a large dose of tuberculin and then in about ten days submitting them to the official tests. As this practice is very common in the sales yards here in California steps should be taken to regulate the sale and distribution of tuberculin.

Inspectors' Reputation at Stake

It is almost worth a man's professional reputation to test cows passing through some of our sales yards. My certificates read that the animal appears to be free from tuberculosis as shown by my test, and I make it a practice to inform the buyer that she might be tuberculous at that and also why.

The Inconstant Reactor

Number three constitutes the greatest danger as it is something over which we have no control and cannot foresee, viz: the cow, that although tuberculous is not a consistent reactor. To grasp the full significance of this condition one must be familiar with the theory of why a tuberculous cow reacts to tuberculin. At the point of their lodgement after entering the body, the tubercle bacilli give rise to inflammation of the surrounding parts, caused by the reaction of the tissues to the bacilli. The proliferation of the various body cells produce the tubercle: and also, as a result of the toxins, the completed tubercle at times disintegrates, the central cells die off, break down, and the mixed exudate is converted into a granular, cheesy mass in which lime salts are eventually deposited, producing the calcareous masses sometimes found. I think if this latter process is rapid enough and the lesions few, recovery from tuberculosis is possible, but to defend this statement would open up discussions too long to be considered in this short article.

The tubercle bacilli owe their activity to the toxins already referred to, which are constantly formed, and thrown into the system, producing the peculiar hectic fever with its characteristic remissions and exacerbations as shown by the diseased animal. In many cases the infection is so slight as to cause but little systemic disturbance. Toxins are being formed, but sparingly.

The Cause of Inconstant Reactions

These toxins produced in the lesion, induce certain changes in the animal body as a result of which it reacts to a second infection or to the toxins of the bacillus (tuberculin), in a different manner than the animal that

is not so affected. This condition (allergia) which is an altered power of reaction manifesting itself in increased resistance toward the virus in question and its toxins (tuberculin) and is in fact a form of anaphylaxis. The animal is in a sensitized state. When the tuberculin is injected into the body antibodies are formed. This may explain why one injection of tuberculin inhibits a reaction to a second injection up to a certain lapse of time. The body being in a state of anti-anaphylaxis; the sensitizing elements are exhausted and require time for their restoration.

When the tuberculin fails to cause a reaction in cases of advanced tuberculosis it is probably due to an immunity to the toxins.

Now the writer's opinion why a tuberculous cow reacts at alternating periods is based on the theory that the amount of toxins formed in the lesions varies at different times. The lesions may be active or inactive as influenced by the animal's general condition. If an injection of tuberculin is made at the time the lesions are inactive and forming a small amount of toxins which is not enough to properly sensitize the animal, the reaction or anaphylaxis will not occur or to such a slight degree as to be overlooked. If, on the other hand, the toxins formed are liberal the opposite will occur.

This short article was not written with the intention of thoroughly discussing the subject matter but as a brief statement of a common everyday practitioner's opinions and conclusions arrived at after years of experience and reading.

The Anatomy of the Viscera of the Chicken

(Excerpt from the Kansas State Agricultural College Pathology Bulletin.)

THE DIGESTIVE TRACT

The Mouth and Pharynx

The cavity of the mouth is irregular in shape. The beak or bill takes the place of the lips, cheeks and teeth, and consists of a horny covering of the maxillae and mandible.

The tongue is triangular in shape, stiff, rather firm and covered with a horny membrane. The base of the tongue is provided with a transverse row of stiff papillae the free ends of which are directed backwards.

The hard palate is triangular in shape, nearly flat, has a median ridge and a single slit-like opening, the choana, leading into the nasal cavity. The posterior part of the hard palate presents several rows of papillae, similar to those of the tongue, their general direction being backward and downward.

The pharnyx is not distinctly separated from the mouth, the soft palate being absent. The aditus laryngis, a narrow slit in the pharyngeal floor is closed by two lateral lips. The epiglottis is absent.

Several glands open into the mouth and the upper part of the pharynx. Their secretion contains no digestive ferment and its function is chiefly that of a lubricant. Deglutition is performed by a series of jerky movements of the head accompanied by pressure of the tongue against the hard palate.

Esophagus: Anterior Ingluvies (crop) Posterior

The esophagus is a relatively large, thin-walled, easily disendable, musculo-membranous tube leading from the pharynx to the proventriculus. It is divided into two parts: the first extending from the pharynx to the ingluvies and the second from the ingluvies to the proventriculus.

The crop or ingluvies is a large ovoid diverticulum from the esophagus, capable of great distention and used as a temporary storage for feed. It is located at the base of the neck chiefly to the right of the median plane. It lies at the junction of the first and second esophagus the openings of which are on the dorsomedial side approximately 2-3 cm. apart. The anterior extremity of the esophagus lies dorsal to the trachea but it soon turns to the right and passes down the neck to the crop in this relation.

The Stomach

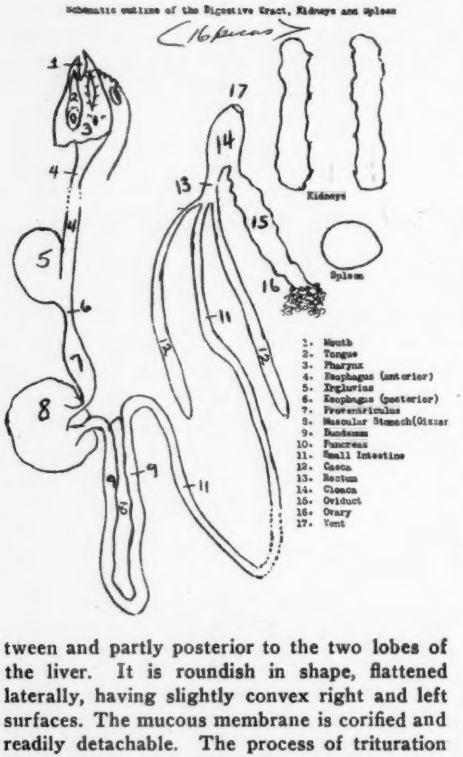
(1) Proventriculus or Glandular Stomach.

(2) Ventriculus, Musclar Stomach or Gizzard.

The proventriculus is rounded transversely and elongated, forming a small fusiform dilata-

tion, which communicates anteriorly with the second esophagus and posteriorly with the gizzard. It is directed slightly to the left and is related laterally to the left lobe of the liver. The volume of the proventriculus is inconsiderable. Its cavity is very narrow and the ingesta does not accumulate in it but passes directly through carrying with it an acid juice which later dissolves its protein elements.

The ventriculus or gizzard is separated from the proventriculus by a small constriction. It is a large dense organ and is situated partly between and partly posterior to the two lobes of the liver. It is roundish in shape, flattened laterally, having slightly convex right and left surfaces. The mucous membrane is corified and readily detachable. The process of trituration of the ingesta is facilitated by the presence in the stomach of hard substances, such as, cobles, grit, etc. The openings from the proventriculus and to the duodenum are orso-anterior and close together. Although this organ is not regarded as the true stomach of birds some authors claim that the true digestive juice is secreted here.



The Small Intestine

The duodenum is in the form of a long loop, the two flexures being rather closely related with the space between occupied by the pancreas. Originating on the right of the ventriculus, the duodenum extends posteriorly along the right abdominal wall, curves medially allowing the flexture to lie more or less centrally in the posterior part of the cavity. The remainder of the small intestine is suspended from the dorsal wall of the cavity by a delicate mesentery. It occupies the space posterior to the liver and dorsal to the ventriculus.

The Large Intestine or Rectum

The large intestine is short and only slightly larger than the small intestine. It lies to the left of the median plane and ends at the cloaca. There is a lack of agreement among writers as to whether this portion of the intestine should be called the large intestine or the rectum.

The Caeca

The caeca are two long slender tubes connected to the anterior part of the large intestine or rectum. They are directed anteriorly, lie free in the cavity, the blind ends from fusiform enlargements and the opening is guarded by a sphincter muscle. Their dark color aids in identifying them. While the caeca always contain some food they are not regarded as having the same function as the same structure in mammals.

The Cloaca

The cloaca is a short wide tube capable of considerable distention which serves as a common opening for the alimentarty and genitourinary system. The bursae of Fabricius, a blind pouch having a small duct or canal opening in the real part of the cloaca is present in young chickens but usually atrophies in adults. The terminal part of the cloaca is the anus or vent.

The Liver

There is a voluminous gland, divided into two principal lobes, right and left of which the former is always the larger. The liver is provided with gall bladder wihch is attached to the visceral surface of the right lobe. Two piliary ducts open separately into the second loop of the duodenum near its termination. One, the hepatic duct, proceeds directly from the two lobes while the other, the cystic duct, leads from the gall bladder and belongs exclusively to the right lobe.

The Pancreas

This is a long narrow well developed gland situated between the parts of the duodenal loop. Two or three ducts leave this gland and enter the duodenum near the ventriculus.

The Spleen

The spleen is a small rounded organ, reddish brown in color, which is located at the junction of the glandular and muscular stomachs. It is an inch or less in diameter.

THE RESPIRATORY APPARATUS

The nostrils are the two narrow oval openings pierced throught the base of the upper mandible.

The nasal cavity is short and narrow and the nasal septum is complete. The nasal fossae open into the pharynx by a long narrow slit in the median line of the hard palate.

The anterior or cranial larynx communicates with the pharnyx through a slit like opening, the aditus laryngis, which is situated in the pharynal floor. The aditus laryngis is closed by two lateral lips. The epiglottis is absent.

The trachea is long and is composed of complete cartilaginousings. At its terminal part is the posterior larynx or syrinx which is formed in part by the bronchi. Between the bronchial openings there is a ridge on each side of which is an elastic membrane the vibrations of which give rise to the voice.

The bronchi show only incomplete rings, the remaining portion of the wall being formed by a membrane. The two bronchi enter the ventral surface of the lung.

The lungs are rather small bodies wedged in between the thoracic vertebrae and the upper portion of the ribs. The costal surface is deeply grooved by the ribs. The peculiar rosy color and the arrangements of the bronchi are interesting features. The stem-bronchus enters the ventral surface anterior to its middle, passes through the lung, giving off secondary bronchi, and opens into the edominal air-sac. The secondary bronchi, ten in number, give rise to the tertiary bronchi. These end blindly and present the openings to many small tubes which end in dilatations very similar to the alveoli of the lungs of mammals.

A series of air-cells or air-sacs extend along each side of the body cavity. These cells or sacs communicate with the bronchi and with the exception of the thoracic sacs, the pneumatic bones.

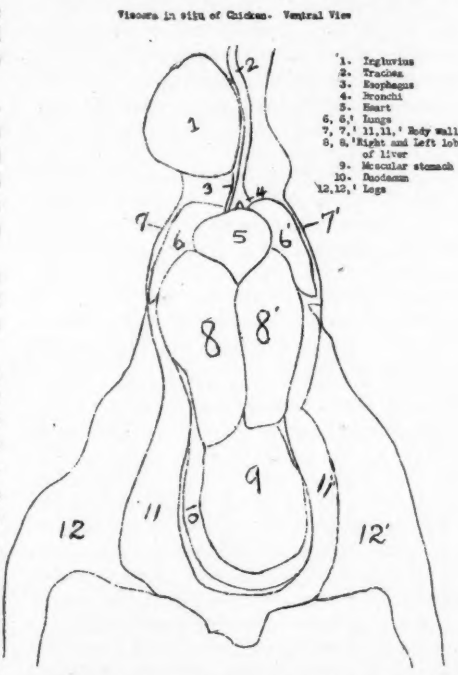
The diaphragm consists of a thin membrane containing some muscle fibers. It is a double structure: the two parts having a common origin from the vertebrae just posterior to the lungs. One portion covers the ventral surface of the lung while the other passes to the sternum. While the diaphragm of birds lacks the development of that of man and quadrupeds it is considered the chief muscle of inspiration.

THE URINARY APPARATUS

The kidneys lie along each side of the vertebral column, immediately posterior to the lungs and in the lumbar and pelvic regions. They are elongated and regular in form being moulded by the structures with which they come in contact, their color is dark red and they are very friable.

The ureters arise on the ventral surface near the anterior end of the kidneys run almost straight back and open into the cloaca.

The excretory apparatus, is incomplete as it



is formed by the ureter only, the urine being mixed with the feces. The ostrich is the only bird having a bladder.

MALE GENERATIVE ORGANS

The testicles are related to the ventral surface of the enterior lobes of the kidneys. They are bean shaped, pale yellow in color and vary in size in the different species as well as with the season of the year. During the breeding season the testes become greatly enlarged.

An extremely flexous vas deferens passes backward in close relation to the ureter of its

own side and terminates in the cloaca just lateral to the ureter.

FEMALE GENERATIVE ORGANS

Birds have only one ovary, which is situated on the left side, the right ovary becoming atrophied very early in nearly all species. The ovary is situated in the sublumbar region. It is a very irregular, voluminous body, composed of a variable number of ova in different stages of development. The very young ova are small and white in color while the more advanced in age are large and yellow.

The oviduct is a long, wide, very dilatable and very flexuous tube which originates at the ovary and terminates at the cloaca. Only the left oviduct developes to any extent and its size depends upon its functional state. It is rather a creamy white in color and in laying hens is very vascular. The egg shell is secreted by the posterior part of the oviduct shortly before the egg is laid.

Autopsy of the Fowl *

It is very difficult, in the majority of cases, to make an accurate diagnosis of the diseases of poultry by means of the "symptoms" alone. For example, a bird showing paleness of the comb and wattles, shanks and visible mucous membranes along with extreme emaciation may be affected with any of the following diseases: tuberculosis, intestinal parasitism—either round or tapeworms, air-sacmites, external parasites as lice and mites, chronic coccidial enteritis, nutritional disease, etc. Other diseases, for example, fowl cholera and fowl typhoid may show an extremely high temperature along with similar symptoms and examples might be given with still other diseases showing various groups of symptoms.

Specimens Not Lacking

Fortunately, however, owing to the low value of the individual it is comparatively easy to secure more than one bird for autopsy and in a great many instances this is necessary before a correct diagnosis can be made. In fowls, as in all other species of animals an anti-mortem examination is very important and it is always advisable to make a thorough study of the external changes that may appear. Frequently valuable suggestions may be obtained from the eye, visible mucous membranes, the temperature, condition—either excessive fat or emaciation, nervous disturbances and the color of the droppings, especially when a diarrhea is present.

How to Kill Fowls for Autopsies

The killing and examining of fowls is rarely accompanied with any difficulty if properly done but if improperly performed it may prove quite annoying. The following technique although not identical with that in practice at our laboratory is a rapid, humane and practical method that may be applied in the field.

In those cases in which the bird must be destroyed it is important, not only from a standpoint of cleanliness but also from that of the spread and propagation of infection, to do it in such a way that no blood will escape from the body of the bird and contaminate the surrounding floor or soil.

A very easy method of doing this is to grasp both legs of the bird in the left hand then grasp the bird's head with the right hand in such a manner that the base of the skull will fall in the palm of the hand at the junction of the thumb and index finger. Then place the second or third finger on the ventral surface of the lower mandible. By exerting pressure with the finger on the lower mandible, the head may be extended.

A deliberate pressure is then applied steadily downward on the base of the skull with the right hand, holding the left hand rigid until a parting of the vertebrae can be detected. This dis-articulates the vertebrae, severs the spinal cord and the blood vessels of the neck without breaking the skin and the fowl "bleeds out" under the skin, without danger of spreading contamination.

The Skin Should Not Be Broken

Any difficulty encountered in this method will probably be due to the improper holding of the head or unsteady traction. All traction should be released as soon as dis-articulation occurs. The operator may then grasp the two wings, close to the body with the right hand, release the legs and hold the bird in this manner until all reflexes cease.

Instruments Required

The equipment necessary to perform a post mortem in fowls consists of one scalpel, a pair of scissors (preferably six inch), a small pair

* Kansas State Agricultural College, Pathology Bulletin

of costotomes for breaking down the coracoid and clavicle bones and a box or bench upon which to place the carcass while operating.

The Abdomen First

The first step in the autopsy is to open the abdominal cavity and, of course, to accomplish this it is necessary to cut the skin. Doctor Beach, of the California Station, describes a method of tearing the skin by grasping one leg in each hand and pulling them away from the body. This is very good in young fowls but it has been our practice, in old fowls, to cut the skin. This may be very satisfactorily accomplished by placing the bird on its back with the head directed away from the operator. The feathers are then moistened with water to prevent their sticking to the operator's hands or flying about and lodging on the exposed part of the carcass.

Place the index finger of the left hand against the left thigh, the thumb against the sternum, and make a longitudinal incision through the skin parallel to the sternum at the junction of the leg and body. Make a similar incision between the body and the opposite leg. These two incisions should then be connected by a transverse incision at the posterior point of the sternum. By grasping the lips of the incision in either hand and drawing them apart, the skin may very readily be removed from the ventral surface of the body as far forward as the junction of the neck and breast. An incision through the skin is then extended up the ventral surface of the neck to the mouth, scissors being used in this operation. If the operator will then grasp the edges of this incision and exert a slight traction laterally the ventral and lateral surfaces of the neck may be bared leaving the trachea and esophagus exposed for examination. As a result of this procedure the skin and muscles of the ventral surface of the body are also exposed.

The next step is to open the abdominal cavity. This is performed by grasping the posterior point of the sternum with the thumb and index finger of the left hand. Make a small opening through the abdominal muscles with the scissors as near this point as possible.

Then Expose Thoracic Organs

Then extend the incision downward and outward through the ribs to the coracoid and clavicle bones (breast bones), care being taken not to injure the lungs and liver. Extend a similar incision down the opposite side. At this point in the operation the posterior extremity of the sternum should be raised slightly and with the aid of the knife the pleura, peritoneum and pericardium may be dissected away from the sternum. The next step is, with the aid of the costotomes, to break down the coracoid and clavicle bones of the left side at the anterior point of the incision made with the scissors.

Next cut through the muscles attached to these bones and by holding the bird's body firmly against the operating table with the right hand and grasping the breast plate with the left, the breast may be rotated to the left, exposing the abdominal and thoracic organs, **in situ,** and also the visceral surface of the sternum. If the operation to this stage has been carefully performed an examination may now be made of the viscera, **in situ,** for injection of the blood vessels, hemorrhages or any fluid that may be contained in the abdominal cavity. Frequently valuable information or suggestions may be noted at this stage.

Examination of Organs In Situ

After the examination of the organs, **in situ,** has been made the duodenum may be severed at the point of its origin from the gizzard. By blunt dissection or tearing the omentum may be broken down and the intestine laid out upon the table. The liver may then be dissected away and examined after which the gizzard may be grasped in the left hand and by cutting in an anterior direction, the posterior esophagus, ingluvies and the anterior esophagus are dissected away to the mouth. The entire alimentary canal should then be opened and an examination be made for intestinal parasites, abnormalities of the mucous membrane and of the intestinal contents. The pharynx should be carefully inspected as this is a common seat of various disease processes. The heart is then removed and examined for any abnormality. Next the lungs may be taken out and the trachea should be opened to show the presence of parasites (gape worms), diphtheritic patches, inflammatory changes, etc.

The genital organs and the kidneys should be observed after the other abdominal organs have been removed. They are both closely attached to the spine and their study is facilitated by subjecting them to a direct light.

My Experiments with Avian Tuberculosis*

By Chas. Schmitt, Dodgeville, Wis.

When I was asked to write a paper on the subject you have on the program, I hesitated somewhat as there are so many university and college bacteriologists and investigators who have proper equipment and plenty of time to make laboratory tests and retests if necessary with their experiments.

Practitioner Can Make Valuable Observations

Experiments are carried on by a practitioner in a dairy district with difficulty and can't be as thorough as if made in a fully equipped laboratory by an experienced man. Nevertheless, much valuable material is gathered by men in the field. They observe conditions where man, cattle, hogs and poultry associate and come into contact with each other by so many different ways, and where so many avenues are open to carry the infection from one to another.

A disease later proved to be tuberculosis in mammals and birds was transferred from one animal to another by the injection of crushed nodules by Villeman as early as 1865. He did not succeed in discovering the specific organism however.

Observed in 1881 by Zum

Avian tuberculosis was recognized as early as 1881 and 1882 by Zurn. Koch also mentioned it in 1882, when he isolated the specific organism of tuberculosis. Grancher and Ledoux Lebard announced it in 1891. E. F. Pernot of Oregon described it in 1900, also Burnett in Northern New York in 1900, Moore and Ward found the disease in California in 1903, where in certain flocks it was very destructive. The writer found the disease as early as 1906 and 1907 in Wisconsin, but not so extensive as in 1909 and 1910 when it became common in Iowa county.

Demonstrated at Wisconsin Clinic in 1911

In October 1911, the writer gave clinical demonstrations on avian tuberculosis at the Wisconsin State Veterinary convention, held at Milwaukee, Wisconsin. Out of ten birds that were shipped from a farm near Edmund, Wisconsin, eight showed tuberculous lesions, one tuberculous liver weighed eight and one-half ozs., an exceptionally large size from a medium size hen. In the fall of 1910 E. J. Hastings, of the Wisconsin Experiment Station, visited Dodgeville, Iowa County. The writer and he visited a farm where avian tuberculosis had been recognized for several years. Some very clinical specimens were found on this farm.

History of An Interesting Outbreak in Turkeys in 1910

One old cock bird had tuberculosis in the joints. In 1911 the writer was called to Montfort, Grant County, Wisconsin, by Dr. Ketterer for diagnosis of a flock of turkeys, which had been killed for market. Out of eight specimens seven showed well defined lesions. The history is very important and significant. On a farm owned by J. B. Johnson, where they had a large orchard in the corporate limits, two lady friends who came from Chicago, being affected with tuberculosis, camped in a tent in the further corner of the orchard for six months.

The farmer had a small flock of little turkeys that roamed around the inclosed orchard during the season. When quite small they became very tame and attached to the two lady patients as they took great pleasure in playing and feeding these pets and as they roamed around the camp picked up offal and other foodstuff such as turkeys like. One of the patients died in the fall and the other remained till cold weather came.

Sewage was by a shallow hole in the corner of the fence on the border of the orchard where the turkeys had access to it. Sputum was not collected or destroyed. The turkeys did not have any other source of becoming infected from what could be ascertained from the owner of the farm. A dealer from another city informed the writer that he had seen quite a number of turkeys with large nodules on their livers which he had killed for market, but that the livers were taken out of them and the carcass sold for food.

Many Cases Seen in 1913

The writer recognized the disease near Stoughton, Dane County, also Sauk County and Walworth County in 1913. Many cases came to my observation in Iowa County, more so of late years. My furnace has consumed many specimens of avian tuberculosis which were brought to my laboratory for diagnosis.

Characteristics of Avian Tuberculosis

No visible symptoms appear in the early stages of the disease in the affected bird until

*Read at the Ill. State Vet. Med. Ass'n, Dec. 5, 1922.

the disease is far advanced. The first symptom is the loss of flesh. In avians that die of tuberculosis the muscular tissue of the breast has practically disappeared, lameness is quite common due to the extensive size of the liver and the extreme changes of the viscera. The comb and wattles become pale and diminish in size, the eyes are open and bright.

Digestive Organs Chiefly Affected

Avian tuberculosis is to be classed as a disease primarily of the organs of the digestive cavity. So far the writer has observed tuberculosis in grown fowls only. It does not appear to occur in young chicks only when they are hatched from infected eggs, and then they live only a short time, only ten days from my observation, and that was only three chicks. The appetite remains and they eat ravenously until a few days before death.

Laymen Call It Spotted Liver

The layman calls it going light or spotted liver disease. The symptoms which are observed in tuberculosis of birds are common to other diseases and therefore while they are valuable as an indication of the measure of the disease they are not sufficient to permit an absolutely reliable conclusion to be reached.

Emaciation is Rapid

There is a rapid and progressive emaciation apparent by the loss of weight and waste of the muscles. The bird loses its bright animated expression and in the later stages becomes quite dull and sleepy. On post-mortem examination the spleen and liver are almost always affected and this is not rarely the case when the intestines and peritoneum are entirely free from changes.

Frequently one will find that the liver, spleen, heart, and kidneys are involved and there are nodules ranging in size from that of a lentil to that of a pea, and not uncommonly you see that of a hazel nut or even larger. Affection of the intestines especially near the cecum is comparatively common.

The Liver a Predilection

From my observation about ninety-nine percent of the cases show liver affection, and I should say that the spleen affections are very close to it. In chronic cases the liver is considerably enlarged, often very extensively. I have seen several cases where the liver was so enlarged that it was one-fourth the body weight of the fowl. It is not uncommon to see a mesentery with millionary tubercles.

Not Often Pulmonary

The lungs are very rarely affected. Occasionally the joints, bones and skin are affected, eyes and wattles not uncommonly, nodules very often protrude above the surface of the individual organs. They may be single or double, and very often three to five are closely associated. In some cases very small little whitish specks, the size of a pin head or even smaller, I have seen cases where the capsule of the liver hid the affection from the eye, when it was milliary.

Very few cases where the oviduct is affected the percentage is small. Among the other organs we find now and then caseous tubercular foci on the peritoneum, also on the kidney, ovaries, testicles, pericardium, muscular tissue of the heart and in the air cells, in the gizzard and at the base of the pleura.

Character of the Tubercles

These tubercles have a cheesy consistency and are easily removed from the surrounding tissue, their color is grayish or whitish and in latter stages of a yellowish tint. In some cases that came under my observation when the feathers were removed one could see the tubercles of the liver from the outside of the body. The emaciation of the muscular and cellular tissue is so extensive in advanced cases that it is very easy to recognize the tubercles of the liver.

Prevalence

Avian tuberculosis seems to be prevalent in most states and foreign countries. In some sections it is quite common, if the statements of our professional men are to be accepted. Some of them recognized those facts years ago in a publication entitled "Avian diseases and their treatments." It is stated that avian tuberculosis has been reported from numerous parts of the country within the past few years.

Modes of Infection

The avian family becomes exposed to the tuberculous infection for the reason that other animals and humans may carry the infection to them by many different ways. They themselves will transmit the disease to one another. Eggs from infected hens may carry the infection, or meat and bone scraps from infected animals, whey from cheese factories which was not pasteurized, skimmed milk, and droppings from tuberculous animals. Secretions and sputum from humans, all of them mentioned

and many other avenues of which we do not know may transmit the infection.

Transmitted from Humans and Vice Versa

The infection is transmitted from humans to avians and vice versa, and from bovines to avians and hogs to avians and vice versa, the interchangeable types of the tubercular organism in the different species is undeniable. While there are some differences in the shape of the organisms grown for considerable time in the various animals and differences (biochemically) then grown in artificial media after isolation, yet the type peculiar to any of the warmblooded animals, will grow in any of the other warmblooded animals.

I have seen tuberculosis in humans, poultry, and cattle on the same farm and at the same time; it is often impossible to tell how many of the different species of animals on the farm are affected at the same time. Once in a while a farmer will get alarmed when he is about to fill his pork barrel, and realizes that there is something wrong with his porkers that he has butchered.

Which Type is the Ancestor?

Many different types of tuberculous organisms have been recognized. What part of the cycle is avian tuberculosis? As in the case of Indian corn which is the parent of many different varieties of pedigreed corn of today, which one of the many different types of the tuberculous organisms is the ancestor?

Transmissibility Undisputed

The inverse transmissibility of the organism is undisputed, and also that there is a close relationship among the different types of the organism. Dr. M. P. Ravenel called my attention to a tuberculous specimen from a human which resembled very much that of avian. The United States Bureau of Animal Industry reported cases where hogs were fed tuberculous hens and became infected with tuberculosis. Turkeys which had access to the sputum and offal of two tuberculous patients became infected with tuberculosis. Hens fed on the carcasses of a tuberculous cow became infected.

The transmissibility being established, nevertheless there is a differentiation, but their resemblance must not be lost sight of.

Transmitted from Hen to Cow Experimentally

The writer injected crushed avian tubercles into a tuberculous cow and on post-mortem well-defined lesions were found of both bovine and avian, that is avian and bovine tubercle bacillus. It may be somewhat imaginative on my part, but I have recognized this fact, that avian tubercle bacilli take the stain more readily than others, also that avian tubercle bacilli appear under the miscroscope more in clusters or bunches conglomerated with a few scattered ones in the field. In one specimen of a turkey it resembled that of human more than avian. Very recently my attention was called to a six month calf that had reacted to the tuberculin test, when tuberculous chickens had access to the stall and feed trough, no other source of infection could be found for the cause.

It is a recognized fact that bovine tuberculin injected into avians does not give a reaction when avian tuberculosis exists. Why not? Whether the high temperature of the avians has something to do with it I can not answer. The fact that the different types of the organism differ in size, shape and behavior must have some cause for it.

The differences of temperatures and diet no doubt have some effect. Have the mineral salts some retarding effect on the tubercle bacillus?

Avian tuberculosis on a farm is a sign that there are other species affected with tuberculosis.

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Some Mycotic Diseases

By J. L. Tyler, Associate Editor

MYCOLOGY is that branch of botany that treats of fungi or fungus growths; characterized by molds, rusts, etc. This branch of animal pathology has not been given the attention due it, as I think it plays more of a part in our animal diseases than is generally supposed.

MYCOTIC PNEUMONIA

There is a mycotic pneumonia which while comparatively rare, is well known to exist. In fact, I think such a condition came under the observation of Dr. Boucher of Pasadena, last year. In its symptoms and course, the disease is similar to a catarrhal pneumonia and is first shown by a bronchial catarrh and irritation. In the horse, spasms of coughing, blowing the nose imitating a sneeze as near as a horse can, are prominent. Some cases are of a chronic nature—the horse living for some weeks, exhibiting extreme lassitude and emaciation. Other cases run a more rapid course with profuse hemorrhages from the air passages and even showing hematuria. This condition occurs most often in horses on the range or those feeding over grain stubble, but may be seen in stable fed horses if the feed is sufficiently affected.

GASTRO-INTESTINAL DISORDERS

Gastro-intestinal disturbances are common from the eating of moldy or fungus covered feed. I saw a large number of such cases in cattle on the Chino ranch of the American Beet Sugar Company, a number of years ago, from eating beet tops which had received an early rain followed by warm weather. All showed gastro-intestinal lesions. Some had hematuria, others exhibited brain lesions with a tendency to violence.

The similarity of this condition to certain forms of hemorrhagic septicemia should not be overlooked. The main diagnostic difference being found in gastro-intestinal lesions and the following paralysis in which the animal is unable to rise. In many cases, bloody feces are passed and there may be constipation in the early stages, followed later by diarrhea.

As I stated before, I think mycosis plays a larger part in many conditions than has been generally supposed and I think opens up a wide field for research and observation and it behooves the practitioner in the field to be on the alert and very observing, noting conditions, results, pathological lesions, blabing his own trail, as he will find that the literature on mycosis almost nil, very little being found in our text books or Journals on this subject.

MYCOTIC STOMATITIS

Another condition found very frequently at certain times of the year, the season of which here in California is just about upon us, is mycotic stomatitis. The name stomatitis signifies that there is present in the affected cattle an inflammation of the mucus membrane of the mouth. This inflammation quickly develops into ulcers and is one of the principal and most frequently observed lesions.

Mycotic stomatitis as its name implies refers to that form of stomatitis caused by eating food affected by irritating fungi. Thus the name not only implies the cause but the seat of the chief lesion. Other names have been applied to this trouble by different writers as sporatic aphtha, apthous stomatitis, sore tongue, benign simple non-infectious foot and mouth disease.

Mycotic stomatitis affects cattle of all ages but especially milk cows, where they are pastured. In this country, however, we most frequently find it affecting the range cattle, although some outbreaks have been reported in dairy cattle due no doubt to the fungi being on the hay. It is characterized by inflammation and ulceration of the mucus membranes of the mouth, producing salivation, loss of appetite and secondarily affecting the feet which become sore and swollen and ulcers followed by brown scabs often appear on the teats and udder.

As above stated, the disease results from eating food contaminated with fungi or mold. No particular form has been definitely proven to be the causative factor and it is presumed that more than one is involved. Several attempts have been made by the B. A. I. and others to isolate the exact cause and also to transmit the disease by direct inoculation to other animals, all of which have failed.

The red and black rust occurring on clovers

have been suspicioned as they are known to produce irritation to mucous membranes of the mouth. Also the fungus of rape is very irritating to the mouth and feet of cattle and the different fungi forming on common grasses have come under suspicion.

The disease is not constant in localities that have been affected. It may appear this year and not next which would suggest that certain climatic conditions were necessary for the propagation of the causative fungi. Since it is known that the malady becomes prevalent after a hot, dry period has been followed by rain thus producing ideal conditions for the forming of various molds and fungi. In this state, all the cases that I have seen that I now recall have occurred among cattle turned into fields from which barley or oat hays had been harvested, leading me to believe that certain rusts and perhaps smuts that form on growing grain is the most common cause in this state.

Symptoms and Course

Among the first symptoms seen are the inability to eat, suspension of rumination. The animal separates itself from the herd, stands with back arched and saliva dribbles from the mouth. The appetite is not entirely lost but the act of prehension is so painful that the animal refuses food. However, I have placed ground and chopped food well back in these animals' mouths and they will readily masticate and swallow it. At the beginning, the mouth is hot and red and very small blisters are seen. They soon develop into ulcers, rapidly coalesce and form a large patch of raw, red tissue. These patches form on the gums, dental pad, lips and on the tip of the tongue.

I remember a case in which I attempted to pull out the tongue for further examination and the whole mucus membrane came off in my hand leaving three inches of the tongue raw and bleeding. The ulcers are depressed with some suppuration and as a result of the necrosis and retained food there is a very disagreeable odor. The superficial covering of the muzzle becomes dry, parched and peels off. At times there is a swollen and painful condition of the pasterns, usually in the rear extremities but sometimes in all fours. The swellings rarely go above the knees or hocks. After this comes on, the animal assumes a recumbent position and there may be sloughing of the tissues around the coronets.

In milch cows, slight blisters and ulcers sometimes occur on the teats and even the udder and sometimes fissures and cracks filled with a yellow serum form on the necks and shoulders. I have seen all of these manifestations on different animals during an outbreak.

Treatment

The treatment consists in removing the herd from the range on which they have been kept. The affected animals should be kept in corral where they can be treated. Fresh water should be provided in which a liberal amount of permanganate of potash should be placed from time to time for a large herd, and local treatments of a stronger solution should be applied with a swab. Where the number of affected animals is small enough for individual treatments, alum powder, borax solution or potassium chlorate and tincture of iron may be used. Sloppy food is indicated and if the herd is small, hand feeding can be resorted to, especially if it is a milk herd where it is important to keep up lactation. The lesions on the feet and teats may be treated as indicated by their condition.

Mortality Not High

This is not a serious disease insofar as its mortality is concerned, the animals usually responding to treatment as outlined above in about a week. The losses are not over one-half to one per cent. in severe outbreaks, but its effects as to loss of flesh and milk is of great importance and it thus becomes a disease of considerable economic importance.

Also these cases should receive prompt attention just at this time because it resembles foot and mouth disease. While our quarantine laws are strict and can be relied upon to protect us against invasion through the main ports of entry, it is a known fact that large numbers of cattle are being imported into Mexico from South America with very little attempt at quarantine and may very easily slip over our border. It therefore behooves every veterinarian in California to be alive to this situation and danger.

ACTINOMYCOSIS

Another condition due to a fungus, is actinomycosis caused by the ray fungus or streptothrix actinomyces. This fungus is most often found on grain hay or straw, preferably barley and is easily grown on potato cultures. This condition is too well known to you all for me to devote any particular attention to it.

CATTLE FARCY

The so-called farcy of cattle is caused by a species of streptothrix or fungus. This condition is characterized by purlulent inflammation

of the superficial lymph glands and vessels. These morbid changes almost invariably develop on the extremities, sometimes break down and discharge a cheesy substance, but more often remain intact and are of a hard painless nature resembling a tumor which when removed and incised discloses a firm cheesy somewhat gritty content. It is easily differentiated from tuberculosis by microscopic examination. The tuberculin test would also give the desired information if the animal were not simultaneously affected with tuberculosis.

BOTRYOMYCOSIS

The botryomyces producing botryomycosis in horses belongs to the streptothrix mycosis family. This condition you also are quite familiar with, especially the external lesions, but the fact as stated in Hutyra & Marek that the fungus may be distributed through the lymph glands and vessels, thus producing alarming internal tumors, eventually causing death, must not be lost sight of.

FURTHER RESEARCH A NEED

In fact, the study of mycoses offers a very interesting field for research and thought. I have only scratched the surface. If this paper will have aroused your interest in this subject, I will be more than satisfied for I believe the fungi plays a part in many obscure conditions we meet. I hope that a further study of this subject will enable us to at least give the stock owner something more tangible than "It must be something he has eaten" or "It must be some poison in the hay," which is about all we contribute when called upon to attend these cases. We should at least be able to give proper names and explain how the causative agents enter the system, where they come from, and how they produce the chain of symptoms presented and thus dress up our diagnosis in a better way than to inform the owner that "It must be something they eat that poisoned them."

Eleven O'Clock November Eleventh

Experiments in the Treatment of Canine Distemper with Neosalvarsan

By Prof. Motos, Mr. O. Puricesco and Mr. Sachelaire

(Free translation from Archiva Veterinara)

THE phenomena following injections of therapeutic doses of neosalvarsan has enabled Panisset and Verge* to announce several fortunate results in the treatment of canine distemper.

They had at their disposition dogs affected with chorea, accentuated and varied paralysis and broncho-pulmonary localizations. The results obtained were both immediate and tardy. The phenomena after the injections of neosalvarsan is a more or less important thermic exacerbation followed by a pronounced defervesence: the temperature tends to drop towards normal but repeated injections in the veins of dogs affected with nervous and abdominal forms of the disease did not prevent subsequent, classical, thoracic localizations.

These two authors believe the antitoxic and pyregenic actions of the drug caused no morbid process whatever in the healthy organs.

The drug in distilled water (one gram to 20 cu. cm. of distilled water) is injected into the saphenic vein. The dose employed is two centigrams (3 grs.) of neosalvarsan for each kilo (2.2 lbs.) of live weight (1 gr. to 6 lbs.). At first they injected one dose a week but finally used one centigram per kilo each morning for two days, with intervals of three days of rest between.

We confined our first observation to the catarrhal form because at this stage such a general medication as neosalvarsan, being antiinfectious and antitoxic, would more likely lead to good results. The following is a report of the first cases treated and the conclusions drawn for our observations:

First Observation

Wolf-hound, 2 years old, no appetite, vomition, somnolence, catarrhal conjunctiva, and 40° C. (104° Fahr.). On the abdomen there was a pustule characteristic of the skin lesion of distemper.

A dose of neosalvarsan (.075 grams) was given intraveneously. The next day the temperature dropped to 39.5° C. (103° Fahr.), the appetite returned, the general condition was improved, and vomition ceased. The same dose was repeated. The second day, the temperature was 38.4° C. (101° Fahr.), and all symptoms had disappeared. The temperature remained between 70° C. (98.5° Fahr.) for the next four days when it was turned over to the owner as cured.

One month later it was brought back with a high fever, 39.5° (103° Fahr.), conjunctival discharge and posterior paralysis. It was given the same doses for two consecutive days and the treatment completed with injections of strychina. In 10 days the dog was cured.

Second Observation

Wolf-hound, aged three months, presenting the following symptoms: Anorrexia, conjunctival congestion and catarrh, temperature 40.5° C. (105° Fahr.) and very sick. It was given .1 grams (1.5 grs.) of neosalvarsan in 10 cu. cm. (2.5 drs.) of distilled water. On the next day the temperature had dropped to 39.3° C. (102.6° Fahr.), the appetite was returning, but severe posterior lameness continued. The dose was repeated. Twenty-four hours later the temperature was 39.2° C. (102.3 Fahr.). On the fourth day .075 grams (1.01 grs.) were injected in the saphenic vein. After this injection the temperature dropped to 38.7° C. (101.5° Fahr.) and during the days following to 101° Fahr. The discharge was disappearing and the patient took a little nourishment. On the sixth day the animal showed no further symptoms of illness.

Third Observation

Wolf-hound bitch, six months old, mucopurulent conjunctivitis, laryngeal hypersensibility, cough, diarrhea, and temperature 39.5° C. (103° Fahr.). On the first day it was given 1 gram (1.5 grs.) intraveneously. The same evening there was already a little improvement and on the next day the temperature was 38.8° C. (102° Fahr.). The next day as the temperature had risen to 39.1° C. (102.3° Fahr.), the injection was repeated. During the third and fourth days, the temperature was 38.4° C. (101° Fahr.) and the general condition improved, appetite good, diarrhea gone. On the sixth

*Societe de Medicine Veterinaire, June 17, 1922.

day, the third dose was given. Seven days later the cure was complete.

Fourth Observation

Beagle hound, aged eight months, presenting all the symptoms of distemper, with a temperature of 40.2° C. (104.6° Fahr.). A single dose of .05 grams (.75 grs.) made all symptoms of the disease disappear in three days.

Fifth Observation

Pointer, aged three months, very sick, no appetite, catarrhal conjunctiva, a temperature of 40.2° C. (104.6° Fahr.) and eruptions on the skin of the abdomen. A single dose cured the animal.

Sixth Observation

A wolf hound of eight months, vomition, cough, no appetite, catarrhal muco-purulent conjunctiva, temperature 40.2° C. (104.6° Fahr.), dyspnea, accelerated respiration (100 per min.) the characteristic and labial blowing of broncho-pneumonia.

It was given .1 gram (1.5 grs.) of neosalvarsan in the vein the first day of the treatment. There was marked improvement in all the symptoms the next day. The dose was repeated. On the second, third and fourth days the temperature was 38.5, 39.3 and 39.6, respectively.

The patient was treated with a sinapism, caffeine and digatalin. In several weeks it was completely cured.

Conclusion

We have never obtained any amelioration with these remedies in grave cases complicated with chorea, paralysis and gastro-enteritis and only once in broncho-pneumonia. Panisset and Verge also signalized the same facts.

Doses of neosalvarsan (.75 to 1.5 grains) are well supported by dogs affected with distemper. No symptoms of intoxication have been observed.

In the septicemic forms, the temperature begins to fall six hours after intraveneous injections. Four to five hours after the injections, a marked amelioration of the symptoms is followed by cure.

It remains to be seen whether an animal once cured can not become reinfected (see first observation).

Liability of Veterinarians for Wrongfully Abandoning Case Once Undertaken

Leslie Childs, Greenfield, Ind.

A CAREFUL examination of the books has failed to disclose but little authority upon the question of the liability of a veterinarian for the wrongful abandoning of a case once undertaken. However, in Boom v. Reed, 123 N. Y. S. 421, this point of law constituted one phase of the case and was passed upon in a clear and instructive manner. The facts and circumstances which culminated in the action were, as taken from the report, substantially as follows:

The plaintiff was a veterinary surgeon, engaged in the practice of his profession, and brought an action to collect for certain services he claimed to have rendered for the defendant in the treatment of a horse owned by the latter. The defendant admitted the employment of the plaintiff, but denied the value of the services and in addition contended that the plaintiff had been so negligent in his treatment of the animal, in not calling as agreed, that he (the defendant) had been compelled to employ another veterinarian, the contention being that under these facts the plaintiff was not entitled to recover.

Upon the trial of the cause it was in evidence that upon the plaintiff's last visit the horse was no better. The animal was at that time, to quote from the language of the report, "throwing himself, getting up and throwing himself continuously. That one could hear him out on the sidewalk, and people complained of the noise."

This it appears was on Monday and the plaintiff, after noting the condition of the horse, agreed that he would call again the next day very early. He did not, however, call the next day, nor at all thereafter, and, it seems, the defendant called in another veterinarian on Tuesday under whose treatment the horse recovered.

The report does not contain any reason for this failure of the plaintiff to call as he agreed to, and it appears that the plaintiff did not offer any evidence on this point. The trial of

the cause in the city court resulted in a judgment in favor of the defendant, and against the right of the plaintiff to recover. The case eventually reached the higher court on appeal and in passing upon the liability of the plaintiff, for his apparent wrongful abandonment of the case, it was, in part, said:

Abandonment of Case Held Negligence

"I think, on the evidence in this case, the city court could properly find want of care and diligence on the part of the plaintiff in treating defendant's horse; in fact, great negligence. The evidence produced by defendant, which the trial judge had the right to believe, showed the plaintiff, being called to treat the animal, and having undertaken its cure, on the day of his last visit—the horse at that time being very ill—agreed to call the next morning very early, but neglected to ever call again. I think the action of the plaintiff in leaving the animal he had assumed to take charge of in such a dangerous condition, and failing again to call according to his promise, was such clear negligence as justified the judgment rendered by the trial court. * * * "

In conclusion the higher court affirmed the judgment rendered by the city court in favor of the defendant, horse owner, holding, as outlined in the opinion, that in view of the facts in evidence the plaintiff was not entitled to recover for the services rendered.

It will be noted that in the foregoing case the horse recovered under the treatment of another veterinarian, and the holding was that by his negligence in abandoning the case the plaintiff was not entitled to recover for his services. However, had the defedant's horse died, without doubt, in view of the language of the court, the defendant would have had a good case for damages against the plaintiff, in addition.

This for the reason that it seems the wrongful abandonment of a case, once undertaken by any professional man, will render him liable in damages for any resulting loss or injury. The reasoning of perhaps the weight of authority upon this point may be illustrated by reference to Ballou v. Prescott, 64 Mo. 305, a case of malpractice against a surgeon in which it was alleged, among other things, that he wrongfully abandoned his patient. In speaking of the duty of a professional man to continue his attendance, once undertaken, it was, in part, said:

THE GENERAL RULE STATED

"The care and skill which a professional man guarantees to his employer are elements of the contract to which he becomes a party on accepting a proffered engagement. They are implied by the law as resulting from that engagement, though it be but verbal, and nothing said in relation to such elements. So, continued attention to the undertaking so long as attention is required, in the absence of any stipulation to the contrary, is equally an inference of the law.

"If a counselor at law undertakes the management of a cause, nothing more being said or done than simply an offer and acceptance of a retainer for that purpose, it will hardly be denied that an abandonment of the cause, before its close would be as much a violation of the contract with the client as a neglect to use the requisite care and skill in its prosecution, and the duty of continued attention is equally an implication of the law as that of exercising the required care and skill.

"That the same principles apply to the employment of a veterinarian there can be no doubt. If he is called to attend in the usual manner and undertakes to do so by word or act, nothing being said or done to modify this undertaking, it is quite clear as a legal proposition that not only reasonable care and skill should be exercised, but also continued attention so long as the condition of the patient might require it, in the exercise of an honest and properly educated judgment, and certainly any culpable negligence in this respect would render him liable in an action."

Conclusions

It is believed that the foregoing veterinary case, when taken with the rule announced in the medical case just quoted from, constitutes a very clear and instructive cross section of the law on the point under discussion. The sum of the rule thus announced may perhaps be briefly summarized as follows:

That in the absence of stipulations to the contrary, it is as much the duty of a veterinarian to continue in attendance upon a case once undertaken as it is for such surgeon to use the required amount of skill and care in the treatment of the case. And that if a case once undertaken is wrongfully abandoned by the veterinarian he would, in the light of the case reviewed and the rule announced, be liable to an action for any damages that might be traced to such abandonment.

Dropsy of the Amnion in a Cow

By J. F. DeVine, Associate Editor

I have a case that puzzles me. It is a three-year-old cow due to calf in about two months. She is as broad as she is long. I am satisfied that she has a large amount of fluid in the uterus. She seems in good health and not distressed, but I never have seen a cow so big two to three months from calving. Please state what steps I should take to relieve this condition. Would you leave her alone until she shows distress? If taped, what is the best method?—E. C. S., Iowa.

Reply by Dr. DeVine: The cow is probably suffering with what is commonly known as hydrops-amnii. It has never been satisfactorily determined whether the allantois or amnion is involved or suffers most, or whether both are equally involved. In women it is the amnion, hence veterinary writers have used the expression of medical men.

The fact that the cow is in good health, not distressed and is able to get up and down are all splendid indications; but her condition may change within the next three months. If she were eight months with calf instead of six months, her chances of going full term without serious injury to herself, would be far more favorable. However, the thing to do is to let nature take its course and assist it as much as you can, doing nothing drastic unless the cow becomes so overburdened with weight that she is unable to rise. Interference then becomes necessary.

Treatment

It would be well to keep the bowels quite active with small doses of saline cathartic, preferably administered in the feed as frequently as indicated. If the cow is hardy and would eat a small amount of Epsom salts and powdered nux vomica, sweetened with powdered licorice root, at each feeding, this is the treatment I would suggest. If you must drench, give small doses of any favorite diuretic, night and morning, and a reasonable amount of Epsom salts, well sweetened with molasses once a day or once every two days, depending upon general conditions. In other words, extract from the body as much water as possible. This ailment usually brings on a cachectic condition as the great volume becomes burdensome. Very frequently it interferes with the other organs of the abdominal cavity and sooner or later brings on paralysis or rather an inability to raise the weight.

Pathogenesis Not Known

There is too little known as to the nature of the ailment. Several veterinary writers have noted that this condition is almost sure to be produced where cows are bred to the American buffalo. The reason for this has not been explained. We, however, now and then see a sporadic case and I have seen at least two cases in which neither the fetus nor the mother perished.

A Case Report

Somewhere about two years ago we saw a large, well-nourished Holstein cow that had so greatly increased in size about the abdomen that the owner became alarmed. At first he thought it might have been due to twins, but as she neared the eighth month of pregnancy her size was so enormous that he felt quite certain it was out of the ordinary and asked me to come and see her. It was plainly a case of the uterus being distended with excess fluid. This could also be determined by palpitation per rectum. About this time the cow had great difficulty in getting up and down. We advised placing her in a large shed with dirt floor and reasonably well bedded. A few days after he informed us that the cow was evidently unable to rise as she had not been up in two days. She could, however, turn herself. We had her fed a very laxative diet, advising the owner to feed her carefully and to let us know just as soon as she showed distress or failed to eat. We, of course, prescribed laxatives and diuretics. About two weeks later showing the effects of decubitus, we dilated the cervix with the hope of bringing on parturition. If we had not, it was our intention to puncture the membranes so as to let out the fluid. The latter was not necessary as she began to strain the day following and with a little assistance was delivered of a live calf, after first getting rid of about thirty gallons of fluid.

Induced Abortion Should Not Be Delayed

Bringing on parturition or abortion should not be delayed until the mother is in such a weakened condition that she is apt to perish. It is well to keep in mind that the mother and fetus usually do perish and it is better to lose the fetus by early intervention than to lose both

the mother and the fetus by letting the case drag too long. Do not expect the over-extended, inert uterus to do too much. When once an attempt is made to abort an animal she should have more or less constant attention until the fetus has been taken away. When the seal is removed and dilation of the cervix, started, it is well then to leave the animal alone for a time, say twelve to twenty-four hours.

After that an effort should be made every few hours to further dilate the cervix and release part of the fluid. If this is attempted while the calf is still small, say around six or seven months, it is usually an easy matter to draw the calf through a cervix, dilated sufficiently to admit the hand.

If, however, the operation is delayed until the calf is larger, it may be necessary to perform embryotomy, which again is comparatively simple when the tissue is so soft.

Abortion Sometimes Difficult to Induce

Those who have had experience with this character of cases are well aware that it is rather an easy matter to abort some animals while in others it is almost impossible to reach the cervix, either with the animal standing up or lying down. In the latter case the good sense of a practical practitioner must come to his rescue. It may be necessary to turn the cow on her back in order to reach the cervix at all. Or even put her on an improvised platform, such as a door with the front parts elevated.

We have had cases of dystocia where there was no place to draw the hind parts up as we wished so we then secured an old door or something similar and lay the animal on that with her head down, making delivery much easier. In hydrops-amnii it may be necessary to elevate the front parts rather than the hind. There is one thing particularly that the obstetrician must keep in mind and that is the operation must be completed reasonably soon after being started, because if the fetus is allowed to perish or the membranes to putrefy, the case of the mother becomes almost a hopeless one.

Cow Becomes Paralyzed

I would be pleased to have some suggestions relative to the following described case:

The condition occurs as a rule in mature cows, although other cattle may be affected. The cases thus far observed have occured on farms on which the usual foods, and housing are found. There has been considerable moldy corn in this community this year.

Symptoms

The most pronounced symptom is a staggering gait. The affected animals frequently fall forward on their head. The temperature ranges from 100° F. to 103° F. Pulse, heart action, and appetite are normal. There is usually normal bowel action, although sometimes constipation. In observing these cattle closely there appears to be an inco-ordination of the front legs and a partial paralysis of the hind-legs. When the animals lie down or fall, they are unable to arise.

Treatment

Some cases apparently respond to treatment and are able to get up within a week. Most of the cases that have recovered do not become normal, at least for five or six weeks. Those that die appear to be in great agony before dying, grinding the teeth and drooling.

Is the condition above described the result of mold poisoning, or is it some infection such as hemorrhagic septicemia, particularly involving the meninges or brain? An answer will be appreciated.—W. F. O., Iowa.

Reply: It is difficult to state whether or not the condition in question is due to mold poisoning, or an auto-intoxication. There is, of course, a possibility that it may be an infection of the meninges or brain, but I am inclined to believe that it is not of an infectious origin.

There are so many new things being discovered relative to nutrition and deficiency that it is difficult for one to even surmise what changes might occur that can be properly accredited to that origin. Eliminating treatment would appear to be the sensible one. After thorough purgation, a good tonic would probably help.

There are 98 dipping vats constructed and operated for the eradication of the cattle tick.

Organo-Therapy

By J. F. Shigley, D. V. M., St. Paul, Minn.

THE history of medical advance is replete with records of the administration of preparations of animal glands. Since the time of Hippocrates these preparations have furnished a very interesting study but at no time have they received such recognition as during the past few years. The public has been aroused by newspaper accounts of gland transplantation. Medical literature has carried numerous articles bearing on organo-therapy with clinical data supporting the importance of so-called glandular extracts in the treatment of otherwise baffling cases. This data served as a basis for comprehensive study leading to the application of organo-therapy to live stock breeding. This series of articles will deal with certain phases of this subject in its practical application to the problems of the veterinarian.

The history of a nation has been defined as a chronicle of the activities of its aggressive groups of men. Applying this to the individual the history would be a chronicle of the activity of certain actively functioning gland groups. The life of the individual, therefore, may be divided into the following periods:

1. **Youth:** Thymus; pituitary; thyroid; adrenal, and pineal. 2. **Sexual maturity:** Male—Testes, adrenal, thyroid, pituitary and prostate; Female—Ovary, adrenal, thyroid, and pituitary. 3. **Pregnancy:** Placenta, corpus luteum, mammary, fetus, uterine mucous membrane. 4. **Suckling:** Mammary, ovaries, and uterine mucous membrane. 5. **Old age:** Atrophy of all the glands of internal secretion.

These periods of glandular activity are worthy of careful consideration.

Gland Group of Youth. The thymus is a temporary organ which disappears at sex maturity. Abnormalities of this gland affect the growth and development of the reproductive organs. Experiments show that early removal of the thymus results in early puberty, while continued thymus function delays this sex change. It is also directly concerned in the normal process of metabolism.

The pituitary gland exercises a marked effect on metabolism and shares with the adrenals, thymus and thyroid a regulating influence on the normal development of the reproductive organs. Gigantism and dwarfism are due to abnormalities of this endocrine gland.

Cretinism, a condition characterized by arrested physical and mental development, is the result of congenital defects of the thyroid or its atrophy in early life. If in later life the thyroid be removed or becomes atrophied, there occurs a peculiar thickening of the subcutaneous connection tissue, known as myxedema. Any changes which occur in thyroid secretion are, therefore, intimately associated with marked changes in the process of metabolism. Hypothyroidism leads to an underdevelopment of the sex gland group while hyperthyroidism leads to a stimulation of this group with a corresponding evidence of increased sex function.

The adrenals bear a very close relationship to the nervous system, histologically, and are remarkable for the size and number of their nerve trunks. When these glands are removed or become atrophied there is a marked decrease in body tone affecting every group of organs, the individual tires easily, becomes weak, and finally dies of exhaustion.

The pineal body in early life furnishes a secretion that inhibits growth and restrains the development of the reproductive glands until this body has become more fully developed. Experimental knowledge reveals that this gland is one of the most important functionally of the glands of youth.

Sexual Maturity Gland Group

The practitioner is familiar with the results which follow the removal of testes. The more important structural changes which occur involve the voice, muscles of the neck region, and skeletal structure. In fact the tendency is to assume a feminine appearance.

Removal of the ovaries has a tendency to cause certain masculine features as shown in general body structure, voice and action.

The prostate gland is an activator of semen, and its production is essential in maintaining virility.

The pituitary gland is of prime importance in the development of the male reproductive organs. Its action on uterine tissue in both the non-pregnant and pregnant animals is a fact of common knowledge.

Now turn to page 188)

Looking Backward

A Look Into the Past Unfetters the Mind, Gives a Clearer Conception of the Present, and Tends to Strengthen Our Confidence in the Future

Apsyrte (356 A. D.) recognized the three urinary diseases—dysuria, ischuria and strangury. Dysuria he defined as difficult urination; ischuria as total suppression and strangury as drop by drop micturition.

Apstyrte also described macrosopic parasites and endeavored to fix a definite pathogenic property to each of them. He attributed verminous colics largely to the tape worm, and thought that other worms originated from them. To him the Gastrophilus equi was a scolex.

The treatment of colics during that epoch if the teachings of Apsyrte represent the standards of those days consisted of bleeding, manual evacuation of the rectum, enemas, suppositories, thermo and kinesitherapy, and dieting. Common salt and honey was recommended as a good suppository; the clysters were composed of salt peter, eggs, oil and warm water, and Eumele of Thebes used wild cucumber roots, asafetida, honey and warm water.

Internally, for colic thought to be caused by worms, a mixture of lime water, oil and wine was recommended; also juice of leek, oil and old wine.

Very ancient treatments of colics gathered by Apsyrte from "Chalcedon, Bithynia" written about 278 B. C., (Chalcedon was a city in Bithynia, an ancient geographical division of Asia Minor), include hoof raspings administered in wine; fumigating the body by covering the horse with blanket and burning castoreum on hot coals under the belly; and bringing mares into the presence of stallions and stallions into the presence of mares in heat. Apsyrte however did not recommend these archaic remedies, believing more in vaginal and rectal palpations for relief and in external applications. He highly recommends the following application; young horse-radish, nettle seeds, and mastic, of each two ounces; wax and honey of each one ounce, and scammony, two ounces. This was rubbed on the abdomen and the patient immediately exercised.

The treatment of colics by the educated ancient Greek veterinarians as determined by these writings were apparently scientific and in keeping with the medical knowledge of the day. It will be noted they are free from superstition, mystery and charlatanism. They were hygienic rather than therapeutic. Knowing little about the internal phenomena of disease they left the interior of the body severely alone, other than attempting to evacuate the bowels.

The same author described the symptoms of colic as follows: "The sides, the flanks and the testicles transpire; the horse strikes the ground with its feet and turns the head to the side as if to point the seat of the pain; and frequently a chil! passes over the whole body. The same symptoms are observed in dysuria with the exception that the horse strikes the thigh with the tail in walking, cramps itself, protrudes the penis, voids a very few drops of urine and seems to be at the point of urinating."

Theomneste of the same period wrote a better pathogenesis of colic: "A horse will suffer from colic if it does not digest the solid feeds and passes whole grains of barley some of which are retained in the stomach. As a result of the indigestion the horse drinks too often and too much; the grains of barley swell from the moisture, fill the stomach and the horse sickens. If the horse does not soon evacuate its bowels from salts it is in danger." Theomneste also thought that horses fell sick with colic from swallowing insects and mentions the gad-fly of the ox as one of them. He also thought horses sometimes swallow spiders.

The impression among laymen that colics are urinary in origin, voiced in the common expression, "There is something the matter with his water," was entertained among the Greek-Roman veterinarians of the 4th century, and was thence passed down through the centuries to the present day. Evidence of this is found in the manuscripts of Apsyrte (III-29-34) a military veterinarian who said "Pain in the abdomen arises from two causes: torsion of the bowels called ileus and disease of the bladder."

(Excerpt from Recueil de Medicine Veterinaire, November, 1922).

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The United Serum Company extends best wishes for a happy and prosperous New Year to all of its many clients.

And thanks those many clients for their generous patronage which made 1922 the most successful year which this Company has ever enjoyed.

The United Serum Company pledges its heartiest co-operation to every client, to the end that our relations may continue mutually profitable and pleasant.

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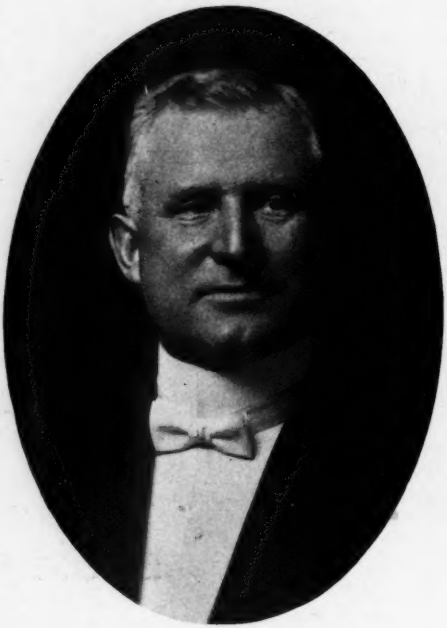
NATION LOSES DISTINGUISHED VETERINARIAN

Dr. J. W. Klotz, professor of surgery in the Indiana Veterinary College, and a practitioner of national reputation as a surgeon, died suddenly at his home in Noblesville, Indiana, December 20, 1922, from acute dilatation of the heart. Dr. Klotz was one of the "old guard," a pioneer graduate veterinarian of the Central States. He joined the American Veterinary Medical Association in 1898 and assisted in the organization of the Indiana Veterinary College in 1895, serving that institution as professor of surgery until his death. He was born at Arcadia, Ind., 54 years ago, and is survived by a brother and a sister, his wife having died two years ago, and a daughter and son, Dr. Lee Klotz, who was associated with him in business at Noblesville.

He graduated at the Ontario Veterinary College with the class of 1891, after having completed a three year academic course in the German school at Arcadia, Indiana; entered practice at Noblesville where he remained throughout his long professional life, developing a practice, amid rural surroundings, the equal of which has seldom been attained by any of the pioneer veterinarians of the Middle West.



DR. J. W. KLOTZ (1868-1922)

Klotz was a lifelong Democrat, took active interest in local and state politics and wielded a powerful influence in the political party of his choice.

In the annals of the veterinary profession he will long be recalled as an obliging, kind-hearted, and exceptionally capable colleague, who was always willing to pass his accomplishments on to others.

As a teacher of animal surgery he had few equals, and as a practical surgeon in the field, capable of meeting all manner of conditions, with almost unerring judgment, there was but one Klotz.

Coming at the hey-day of useful activities, the loss to the profession is one that cannot be easily computed.

LOUIS PASTEUR

Louis Pasteur was born 100 years ago. To be precise, December 27, 1822. He devoted the earlier days of his life to the study of fermentative processes that cause "diseases" of wines and beers, and proved that the prevailing notion about these "diseases" being due to the action of oxygen was ill-founded; that germs (living things) and not mere chemical action were responsible; and that there is a relation between these putrefactive processes and disease of the living body. He discovered the organism of chicken cholera (B. avisepticum) and anthrax (B. anthracis) made vaccines for the prevention of these diseases, proved that rabies is transmitted by an unknown (and still unknown) virus, and later developed a system of preventive vaccination that was not improved upon until recent years. Pasteur's discoveries—refuting the theory of spontaneous generation of disease—became the inspirations of Lister, Virchow, Erlich, Von Behring, Villeman and the others, who added to the budget that will always contribute to ease and its control. Veterinarians should not forget the debt they owe to Louis Pasteur.

Dr. S. R. Meyers, of California, has returned to his former location, Mountain Lake, Minnesota.

Dr. O. B. Morgan, formerly of Rocky Ford, Colorado, has purchased the practice of Dr, F. H. Sharp, and is now located at Canton, Kans.

Dr. Henry C. Schipman, recently practicing at Wagon Mound, N. M., has moved to Las Cruces, New Mexico.

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Veterinary Medical Association of Indiana

The annual meeting of 1923 of this large state association was held at Indianapolis, January 2, 3 and 4. The literary program was given at the Claypool Hotel and the clinics in the amphitheater of the Indiana Veterinary College.

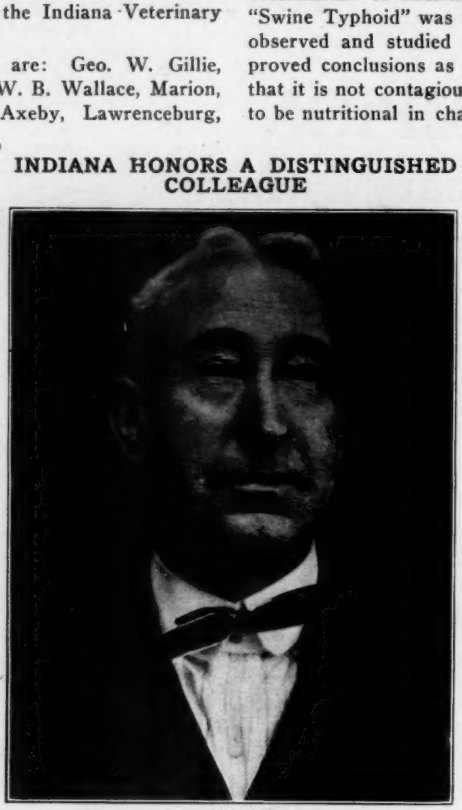
The retiring officers are: Geo. W. Gillie, Ft. Wayne, president; W. B. Wallace, Marion, vice-president; J. L. Axeby, Lawrenceburg, secretary, and J. W. Klotz (deceased), Noblesville, treasurer.

The officers elected for the fiscal year are: M. W. Scott, Vincennes, president; Dr. Whiffing, Lebanon, vice-president; Ralph Boyd, Indianapolis, secretary, and G. H. Roberts, LaFayette, treasurer.

The program was opened by Mr. Chas. Jewett, representing the city of Indianapolis. Mr. Jewett, who is a breeder of Poland-China hogs and an admirer of good veterinarians, spoke at length on the unwisdom of intrusion upon the veterinary field by authorized laymen, and the importance of stimulating and not oppressing veterinary practice in the way to harm the practitioner.

L. A. Merillat, editor of VETERINARY MEDICINE, Chicago, followed with an address on "The Veterinarian of Today," in which he brought attention to the fact that the practitioner today is as much of a pioneer as his predecessor of three decades ago on account of the necessity of showing that he can render service to animals never before thought of as veterinary patients by their owners. The intrusion of the farm advisor on veterinary practice, he said, would adjust itself, if we can show the unwisdom of placing obstacles in the way of veterinary science.

INDIANA HONORS A DISTINGUISHED COLLEAGUE



DR. M. W. SCOTT of Vincennes, Inaugurated President of the Veterinary Medical Association of Indiana, January 3, 1923

Professor R. A. Craig, of Purdue University, gave a profusely illustrated lecture on a number of "Unusual Cases" of interest to the veterinarian of Indiana. A disease he called "Swine Typhoid" was reported as having been observed and studied without arriving at any proved conclusions as to its nature other than that it is not contagious; and although thought to be nutritional in character this has not been confirmed. Another was an outbreak of snake-root poisoning in horses, which, although proved to have been caused by eating this plant, presented the typical dysphagia of botulism.

E. B. Haskins, of the U. S. bureau of animal industry, exhibited the two films "Exit Ascaris" and "The Horse in Motion," the former a lesson in swine sanitation and the latter a mighty instructive analysis of the locomotory movements of all the principal gaits: walking, trotting, pacing, cantering, single-footing, jumping, pulling load, etc. The exhibition was shown to a highly appreciative audience.

J. F. Shigley of the Beebe Laboratories, St. Paul, presented a report on researches he is making in collaboration with W. E. King, M. D., on glandular therapy, with the view of standardizing certain combinations of endocrine extracts for the treatment of diseases of the generative organs of domestic animals, some details of which were published in the January issue of VETERINARY MEDICINE.

W. B. Massie, of Boston, Indiana, read a very interesting and exceptionally practical paper on "Field Types of the Flu." The paper was discussed by J. S. Koen, of the Liberty Laboratories, Bloomington, Illinois, who was

introduced as the "Father of the Flu." Massie did not believe that bacterins were of much use, while Koen and others expressed opinions that when given early they do exert an influence for good and should not be omitted in the treatment. Koen said, "The excessive loss of condition is prevented by bacterins if given early."

Massie advised vaccination for hog-cholera in outbreaks of flu to prevent the cholera that so often follows.

T. A. Sigler, of Newcastle, gave an interesting talk on "Traumatic Indigestion of Cattle," and Professor Hanson, of Purdue University, on "Poisonous Plants."

G. H. Roberts, of Purdue University, read a scholarly paper summarizing the abortion disease situation in regards to generally accepted ideas as to cause, mode of dissemination, prevention and treatment. "The experiments being carried out with 'live vaccine' are promising," the doctor said.

The paper brought out an interesting discussion on the value of Vitamineral in the treatment of the disease, in which it was stated by several that miraculous results follow its administration. Secretary Axeby reported circumstances wherein a badly infected herd was promptly cured with this agent alone, and advised his colleagues to try it.

H. Meade Hamilton, of Muncie, gave an interesting account of his experiences with cesarean section in dogs, warning against procrastination, and advised hysterectomy in the delayed cases.

G. E. Norman's paper on "Cesarean Section in Sows" was short but showed in every word to have been the work of an experienced practitioner. Norman recommended this operation years and years ago to the Indiana veterinarians before many of them thought of admitting hogs among their patients. Dr. Brown in the discussion said he believes that dystocia in sows is often due to the lack of lubricating properties in the fetal fluid and attributes this want to uterine disorders, probably abortion disease. Linen thread was thought to be suitable for closing up the uterus.

H. E. Bryan, of Angola, delivered an address on "What a Veterinarian Should Know."

Continued on page 168

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Queries and Answers

Williams' Operation For Roaring

Some time at your leisure will you please describe Williams' operation for roaring?—S. E. L., Ky.

Reply: Williams' operation is best described by calling it arytenopexy-fixation of the arytenoid cartilage of the left side. In roaring, this cartilage which carries the vocal cord back and forth across the lumen of the larynx has lost its muscular influence through neuropathic atrophy. The atrophy is caused by paralysis of the left recurrent laryngeal nerve. It is a nerve trunk paralysis. The damage to the nerve trunk is in the region of the middle mediastinum and is caused either by toxi-infectious neuritis acquired during serious inflammatory diseases (strangles, pneumonia, pleurisy, etc.) or by direct physical injury of the nerve trunk inflicted by the extraordinary heart's action of severe exertion. Thus, roaring may come from disease or from hard work. The one appears as a sequel immediately following serious ailments of the chest, the other comes on rather gradually in horses subject to violent exercise, like racing or pulling heavy loads long distances.

The Principles Involved

A horse roars because the arytenoid having lost its control, flops in the air passage like a leaf in a breeze. It must be fixed so that it can not flop. Williams' operation does this better than any operation yet contrived. It produces a scar between the arytenoid and the wing of the thyroid and thus makes the former stick to the latter. The operation "pastes" these two cartilages to each other, and more or less effectually prevents the former from flopping. We say, "more or less," advisedly, because if the bond is a good one the horse is cured permanently; if it is less secure, the cure is only partial; and if, as sometimes happens, the scar fails to hold them together at all, the operation fails.

The scar tissue required to effect this bond between the movable arytenoid and the immovable wing of the thyroid is produced by resecting the mucous membrane that dips down between them behind the vocal cord. This space—the laryngeal ventricle—is stripped of its mucous membrane as completely as possible, and with as little damage as possible to the subjacent submucous connective tissue. **Herein lies the secret of success.** The scar or bond should be as spacious as possible and it should be as strong as possible. To make it spacious, that is to say to have it spread over the entire area of the ventricle all the mucous membrane **must be removed** but no more; and to make it as strong a bond as possible, submucous areolar tissue (the connective elements required to form a sufficient quantity of scar tissue) **must not be removed** or even disturbed much. These connective elements are spare and are all needed to construct a sufficient bond. They must not be sacrificed with impunity.

Changes in Williams' original technic have been recommended in all parts of the world, but so far as our personal observations indicate, none of them has added to the merit to the operation, except Blattenberg's method of inverting the mucous membrane of the sac with a burr, which deserves mention because it expedites matters very materially over the author's plan of resection with scalpel and forcep. This, however, is only a matter of individual preference so long as the main precepts are obeyed.

Restraint of the Patient

We prefer the operating table or, in lieu of one, lateral restraint on the ground. The standing operation has never made a hit with us, believing that although it can be done with ease while the patient is standing, it is an operation requiring deliberate work and hence deliberate, effectual restraint. The standing operation to us is not even good quality of guesswork. It has never enabled us to feel assured that the mucous membrane of the ventricle was all removed, that too much was not removed, or that no unnecessary damage was done to the submucous areolar tissue.

The other objections to standing operations are well known to the horse surgeon.

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We like to have the head stretched out well and lying flat, so that the incision can be made on the medial line and parallel with the muscular fibers. On the ground, after the surface of the larynx has been exposed, the head may then be twisted up so that the operator can kneel comfortably at his work. On the operating table the head lies flat throughout.

Local anesthesia is used at two points of the operation: subcutaneously to prevent pain from the incision through the skin and muscles, and in the ventricle by swabbing to prevent movements of the head while the mucous membrane is being drawn out. With these precautions the operation is almost painless.

The Operation Briefly Described

The operator located Adam's apple by palpation. It must be distinguished from the base of the hyoid bone which is three inches farther forward. When the head is stretched Adam's apple lies between the angles of the lower jaw.

An anesthetic solution of low toxic potency is injected subcutaneously from Adam's apple backward four to five inches. An incision is made through the skin and muscles to the level of the larynx and trachea. The anterior end of the incision is at Adam's apple and the posterior at the first ring of the trachea. It is four to five inches long.

The operator should now locate to his entire satisfaction the following structures: From before backwards (a) Adam's apple, a rounded knob with a distinct groove in its middle; (b) the crico-thyroidean ligament, a broad, fluctuating membrane two inches long; (c) the cricoid cartilage, that feels like a ring of the trachea; (d) the crico-trachealis ligament, another fluctuating membrane; and (e) finally the first ring of the trachea. It is not really necessary to expose the latter.

To open the larynx, plunge the scalpel backward through the crico-thyroidean ligament just in front of the cricoid cartilage, and then pass a probed-pointed bistury through the perforation made and cut forward to Adam's apple, which is as far as the knife will go. The probed-pointed bistuory is used to prevent cutting a slit in the vocal cord which the scalpel might do. This makes an invading opening into the interior of the larynx two inches long. The operator will be disappointed at the smallness of the opening and will wonder how it will be possible to dissect out the mucous membrane of the ventricle through it. The apparent obstacle has induced some operators to make a more roomy opening by cutting through the cricoid cartilage and the crico-trachealis ligament behind. This we do not advise as there is ample room to work without adding to the mutilation of the patient.

It is now necessary to adjust the speculum (retractor) into the opening. There are different kinds. We prefer Williams' self-retaining one, because it lies out of the way and always stays in place even if the head should move.

The mucous membrane of the ventricle is now anesthetised by swabbing it well with the anesthetic solution, 2% procaine or any of the more harmless solutions. The ventricle lies laterally to the vocal cord. The new operator should first pass the finger into it to make sure of what he is about to do.

The Stripping Process

The stripping process is done by passing the burr-head down to the bottom of the ventricle and turning it to the right with enough down pressure to tangle the mucous membrane over it. About two complete rounds are required. The idea is to stretch the membrane over the burr-head without tearing it or weakening it so much that it will tear on being drawn upon. The out-traction must be carefully done. That is, it must be slow and deliberate, and as soon as the head now covered with mucous membrane appears at the level of the opening into the ventricle a curved forcep is snapped on the mucous membrane just beneath it. The burr can now be removed. The remaining traction required to completely invert the sac is done by drawing upon it with the forcep. Snipping off with a curved scissors completes the job.

In the case of bad roarers it is best to slip a tracheotomy tube or better still the special McNiel tube into the opening while the horse is getting up, as sometimes the struggling and the coughing to rid the throat of blood cause a seizure of dyspnea. After the horse is quiet there is no danger.

However, when the patient can not be watched day and night for post-operative dyspnea it is best to appease the anxiety by putting in a tracheotomy (at the usual place of performing that operation) for three to four days. This is best done after the patient is standing.

The external wound is treated by wiping it clean and dusting with an antiseptic powder. It is generally all healed in thirty days, but hard work should be avoided for sixty days.

A MILK FEVER RELAPSE

Six months ago a client's Jersey cow was found in the pasture down with milk fever 24 hours after calving. After the air treatment she rose in the usual time and walked to the barn. Some 24 hours later she was down again and totally unconscious. The second air treatment brought her out again and she remained well. Is this unusual?—C. H. B.

Reply: Such cases might be called unusual but not unique. Often the second attack does not respond as well to the air treatment as the first. It is always wrong to drive a cow just recovered from the unconsciousness of milk fever any considerable distance. We find that many of the cases that relapse have been driven from the pasture to the stable.

ABSORBINE AND ABSORBINE JUNIOR

Can you tell me the formula for the proprietary medicine called Absorbine?

Reply: Absorbine is composed of:

℞

Oil of wormwood	1 oz.
Oil of turpentine	4 ozs.
Artificial oil of wintergreen	2 ozs.
Artificial oil of mustard	4 drs.
Rectified spirits	8 ozs.

Absorbine Junior, advertised as good for nearly every human ailment, according to the Journal of the American Medical Association is composed of:

℞

Oil of wormwood	1 dr.
Oil of sassafras	16 drops
Menthol	15 grs.
Acetone q. s. to make	11 drs.

HORSES POISONED WITH ENSILAGE

I have just treated a mule that was found down in the stall in the morning, delirious, partially paralysed and unable to swallow. The pulse was rapid and weak, and the temperature subnormal. Death occurred at midnight of the same day. Three days later a mare died after showing the same syndrome. Both had some diarrhea. They were fed ensilage and sweet clover. The feed has been changed to bright alfalfa.—W. A. B., Ohio.

Reply: There is no doubt that these two animals died from the same cause and that the cause is poisoning from forage. The ensilage

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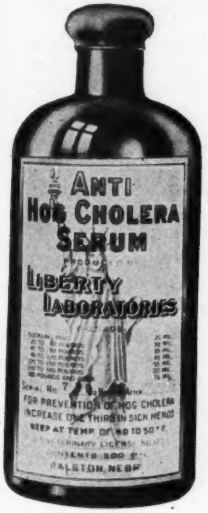

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is probably the source of the trouble. Horses are susceptible to forage poisoning from silage that does no damage to cows. It should never be fed to horses without taking more than the usual pains to throw out lumpy particles and then only in small quantities once a day as a supplementary roughage. The change of feed will probably stop the outbreak.

VACCINATION AGAINST TUBERCULOSIS

What is the procedure and the merit of the process of vaccination against bovine tuberculosis announced several years ago by Calmette? I have been asked to make an address on bovine tuberculosis before a local stockmen's association and would like some particulars about the present status of this work. Our literature seems to lack information on this phase of the subject.—L. C. D., Ia.

Reply: The work of Calmette and Guerin reported in the Annales de l'Institut Pasteur, September, 1921, indicate that young bovines can be made highly resistant to virulent tuberculous infections by injecting them with cultures prepared in a special way. It is a "living vaccine" and is said to be effectual only as long as the attenuated bacilli remain in the body. When the vaccine, that is to say, the attenuated bacilli, are eliminated the resistance ceases.

They prepared the vaccine by growing tubercle bacilli of bovine origin in a medium of potato, cooked with glycerinated ox-gall, and report that bacilli thus grown lost their pathogenicity, and assumed special biologic properties.

HORSE REACTS TO TUBERCULIN TEST

Grey horse weighing 1,650 pounds; 7 years old; early fall showed filling of hind legs; doughy nonsuppurative swelling; lymph gland not affected as in lymphangitis. Purgatives, echinacia, and Fowler's solution were given regularly. Applied absorbents to swellings on limbs, which went down to normal.

The patient was then kept on iron and strychnin for two weeks. Temperature was elevated two degrees; breathing normal; pulse quick and weak; appetite good from start. Visible mucous membranes injected slightly with a yellow muddy color. The bowels acted nicely all along. Three weeks later the masseter muscles were greatly swollen and a bunchy swelling on breast appeared, which seemed doughy and would shift positions. The masseter muscles seemed to get fibrous and patient became more emaciated every day in spite of his ravenous appetite. The teeth

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MARIETTA, PA.

were in perfect condition and the parotid glands normal.

Injections of fibrolysin into masseters daily reduced enlargement about one-half. Counter-irritant absorbents were also applied, and sodium cacodylate administered in 45 gr. doses intramuscularly. Iron and arsenic as tonic, with neuclein hypodermically but the patient continued to get weaker for three weeks. I changed the treatments but still no improvement.

The horse was injected with intradermal tuberculin and showed a nice reaction locally. Lived a few more days and got down unable to support its own weight, but would still eat with a ravenous appetite.

I was not permitted to post him, but in my opinion he had a badly affected liver with tuberculosis. If I had not given him the test and got reaction, I would have diagnosed the case as pernicious anemia.—L. G. C., Ill.

Reply: It is a pity no autopsy was held on this interesting case. The test would of course indicate that the horse did have tuberculosis. Although this disease is rather rare in the equine species they do occasionally contract it and the fact that there is clinical evidence of liver envolvement is not surprising in view of the fact that this organ is a point of predilection for tuberculosis in the horse. Of the three cases of pronounced tuberculosis we had occasion to examine postmortem each one had enormous hepatic lesions. In one of them the liver weighed 40 pounds and was riddled with abscesses varying from the size of a pea to that of a cocoanut, besides thousands of milliary tubercles on the surface of the lungs.

There is no ground upon which to base a diagnosis of infectious anemia. The swellings have no special bearing on the diagnosis. Such complications may be expected in any serious, chronic, organic disease. Circulatory embarrassment explains them.

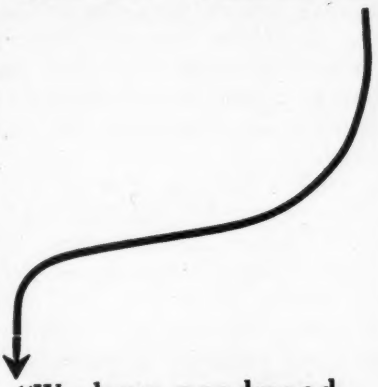
SWINE PARAPLEGIA

About four months ago several purebred gilts and boars were immunized with antihog cholera serum and virus. These swine were on alfalfa and blue grass pasture and have been fed corn, chops and some alfalfa hay. The owner reported some disturbance in his swine about the middle of December and a complete investigation was made.

Symptoms

There is first a general lassitude, the animals showing arched back and some disturbances of locomotion, within two or three days. The

FOR
NINE YEARS



"We have produced anti-hog cholera serum and virus and nothing more; and we believe we have done that well. Our patrons think so too."

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"Once when I was going out to visit some friends," said the late Mark Twain, "I told George, my negro servant, to lock the doors and put the key under a certain stone near the steps. He agreed to do so.

"It was late at night when I returned. I went to the stone under which the key was supposed to have been hidden. It was gone. I hunted around the premises for about fifteen minutes, but still no key.

"Finally I went to George's house--he roomed outside--and rapped vigorously upon the door. George's black head popped out of an upstairs window.

" 'Where did you put that key, you black rascal?' I roared.

" 'Oh, boss,' answered George, 'I found a better place for it.' "

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animals become quite gaunt and the joints enlarge. In some instances there seems to be a paralysis or at least a partial paralysis. The animals "go down in the back." A careful autopsy made on December 18, on one that had been dead only a few hours showed more or less nephritis, and pronounced ulceration of the mucous membrane of the bladder.

The condition was diagnosed as one of nutritional origin. The nephritis and the ulceration within the bladder was thought to be secondary.—O. W. N., Kan.

Comment by A. T. Kinsley

The swine should be given some good mineral supplement and those that are showing paralysis should be given cod liver oil.

BILATERAL LAMENESS IN A HORSE

I have a horse that has a peculiar infirmity that makes it jump over an obstruction like a rabbit. That is, when it is led over the door-sill, instead of stepping over, one foot after the other, it raises two fore feet at the same time and leaps forward. What do you think is the cause of this unusual movement? J. L. S., N. B.

Reply: The symptom is not unusual. On the contrary it is characteristic of lamenesses that are quite uniformly bilateral. The patient does not want to throw all the weight of the fore part of the body on one leg, as is required in stepping forward in the usual manner. It finds more comfort in lifting the two legs simultaneously and bringing them down together on the other side of the sill. Such lamenesses are always traced to the volar surface of the limb in the region of the phalanges.

ANTHELMINTIC FOR PIGS

I am treating about 80, forty to fifty pound pigs, that are badly stunted as a result of parasitism. Will you advise me the most practical, economical and effective worm expellant for pigs?—A. B. C.

Reply by Dr. Kinsley. Although the inquiry does not indicate the kind of parasites infesting these swine, it is assumed that they were ascarids. According to Hall the most practical and economic drug for the expulsion of ascarids from the digestive tube of swine is oil of chenopodium. The effectiveness of this drug is largely dependent upon the preparation of the swine before medication, method of administration, dosage and after-treatment.

Before administering the drug, the swine should be placed in a dry lot without feed or water for from 12 to 24 hours. The oil of chenopodium should be given in capsule, care should be exercised that it is properly placed well back in the pharynx and not lodged in the cul-de-sac of the pharynx. The swine should be given a slop feed in which is incorporated a mild purgative or laxative after administering the drug.

In badly infested heards the treatment should be repeated in about ten days.

EPILEPSY IN A MARE

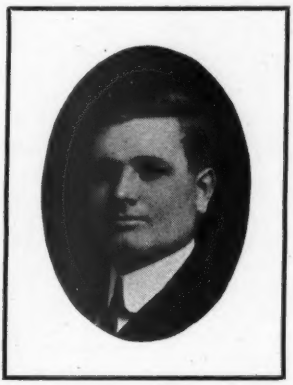
I have a mare 10 or 12 years old that is frequently found running loose about the stable with the halter broken. The owner could never determine the cause until one day as she was being hitched in a team she threw the head around to one side and tilted over flat on her side. In a moment she rose and was apparently as well as ever. Later when turned out with some other horses she was seen to throw her head away up, then twist it around to the side and topple over, rising again without any trouble and without showing any indication of illness. What is the trouble with this beast? —L. L. C., Iowa.

Reply: These seizures are epileptic fits in the form often seen in horses. Raising the head and then turning around to the side is an involuntary act, a cramp if you will. This is followed by a transient unconsciousness and then toppling over of the body. Epileptic fits of horses are often of very short duration. As to cause and treatment, the deponent saith naught.

ADHESIVE PLASTER

Please give in the journal the best prescription for an adhesive plaster to hold surgical dressings and for securing the better coaptation of wounds on the head or others parts of the body in a horse or a cow that cannot be bandaged to any advantage and for support in mobile parts of the body of animals having hair, wool or fur. —E. H. B., Pa.

Reply: After trying out many kinds of wound varnishes for the purpose above mentioned, we have fallen back to the original flexible collodion. By varnishing wounds with alternate layers of collodion and cotton, such dressings can be made



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as thick as desired and will hold parts in coaptation better than any other dressing. We also like antiphlogistine as a means of protection where it is thought desirable to dress a wound occasionally. A thin coat of antiphlogistine covered over with just the kind of cotton that will stick to it, is a mighty good protection for wounds, and besides has a favorable influence upon healing processes. As it dries it can be washed off or teased off.

Another good wound varnish is made with resin dissolved in linseed oil by heat in proportions that will give it the consistency of a heavy oil at ordinary temperatures.

CESAREAN SECTION PUPPY

The operation was performed under local anesthesia by Dr. C. W. Sass, Toledo, Ohio

THE BACILLUS BRONCHISEPTICUS

When asked the cause of canine distemper I am always somewhat confused as to how to reply and would therefore like to have your opinion as to whether or not the micro-organism discovered by Ferry and McGowan some years ago is generally accepted as the primary causative factor. Current literature, both books and journals, does not seem to clear up the situation and the canine specialists I have interviewed have been rather non-committal.—L. J. T., N. Y.

Reply:

You are quite right; there is quite a jumble of ideas in this connection. When Ferry and McGowan announced the discovery of the bacillus bronchisepticus and reported the results of their experiments it did seem as if the question of cause had been settled, and in this country, and in England, in view of the fact that no evidence to the contrary has ever been advanced, there are many who have never given the matter any further thought. Among bacteriologists who have worked with distemper, however, there is yet a great discrepancy of opinion, and Continental veterinarians do not take any stock whatever in this micro-organism, but hold to the opinion that it is due to a filterable virus or to some cause yet to be discovered. European veterinarians do not find the bronchisepticus associated with canine distemper with the same regularity as American investigators. Lignieres, Semmer, Shantir and Freiberger all have their own pet ideas which they confirm with quite as convincing testimony as that of Ferry and McGowan. So, take your choice.

LAMINITIS

I would like to have the details of the alum treatment for laminitis. Do you think cases of laminitis should all be treated alike regardless of the symptoms or its cause? I would appreciate information you may see fit to give me on this subject.—H. C. P., Ill.

Reply: We believe that the word laminitis should no longer be used, since the condition it deigns to describe is not a laminitis at all, but a functional disturbance of the circulatory system of the foot. Stranaud showed by experiments running into hundreds during the war that the process we call inflammation does not enter into the situation. We prefer henceforth to call it founder until some better word is adopted and generally approved.

The treatment of founder that evolved by Stranaud's finding consists of jugular venesection, aconite internally, cold to the feet and removing the shoes, together with plenty of forced exercise. The latter is indispensible. The patient, no matter how seriously affected, is compelled to take from 15 to 20 minutes of forced exercise three or four times a day, using a whip if necessary to start it out.

Alum has been used a great deal by American veterinarians for some fifteen years. Some laud it and others claim to have seen no great benefit from its use. It is given in ounce doses three to four times a day for several days, in capsules.

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Zootechnic Notes

By E. Merillat, Associate Editor

Sunflower silage does not taint milk.

In estimating costs of milk production it is found that the cost of feeding is higher in winter than in the summer and that some cows do not respond to heavy grain rations.

An experiment conducted at the Georgia experiment station indicates that sorghum pomace silage makes a cheap and excellent feed for fattening steers.

The amount of milk to feed a dairy type calf depends upon the size of the calf and the richness of the milk. One pound of whole milk for each 9 pounds of live weight of calf has been recommended.

FROM THE CHRISTMAS NUMBER OF THE BREEDER'S GAZETTE

"We are facing a shortage of heavy draft horses."—Harry McNair.

"All horse users require heavier stock than they needed a few years ago."—George Mason.

"My idea of a good draft horse is one weighing 1,800 to 1,900 pounds, with lots of quality."—J. O. Singmaster.

"The heavy drafter finds ready sale at $300 to $500. Light drafters are in demand at $225 to $275. The active, showy wagon horse is promptly taken at $175 to $275."—R. B. Ogilvie.

"How big should a draft horse be? My ideal is a horse that stands 17 hands high on short legs. It should weigh 1,700 to 1,900 pounds in working conditions and 1,900 to 2,200 pounds in the show ring."—John G. Truman.

The Angora Journal reports losses of goats in some parts of California from liver flukes.

Yucca under proper condition has been found to be a valuable feed to tide cattle over a dry season in New Mexico.

Sour milk, semi-solid buttermilk and other milk products when combined with green foods, such as cabbage, will increase the egg yield.

"The 1,500 pound horse is the most useful for the average farm."—R. P. Stericker.

"Diversified farming is the path to safety," says Dean Russell of the Wisconsin college of agriculture; and "It is the best field for the veterinarian," say we.

Orton and Sparck have independently demonstrated that the ordinary edible oyster may be male, then female, then male again within one year. It has been suggested that the rate of change is influenced by the temperature of the water. There is no difference in the external appearance of an oyster in its male and female phases, although it is possible to differentiate the sexual gland microscopically.

Abortion disease is less frequent among sows properly cared for than among those allowed to shift for themselves a great part of the time. It is a mistake to suppose that a sow needs good care and a balanced diet only when growing her litters. Vigor is indispensible to breeding animals.

THE HOLSTEIN-FRIESIAN AS A BEEFER

Although true, it is not generally known that Holstein-Friesian steers give a good account of themselves as beefers in competition with the best beef breeds. The pound-gain per pound of grain and roughage, the cost of each pound-gain, the percentage of total dressed weight and of loin, tested out in competition with the chief beef breeds, place the Holstein upon a mighty high level as a dual purpose bovine for the small farms. The superiority of the Holstein-Friesian in dairying is conceded.

Why Veterinarians Prescribe Semi-Solid Buttermilk to Use in the Diagnosis of Disease

Many veterinarians now realize that the medicinal value of **Semi-Solid** Buttermilk renders it well nigh invaluable for use in sick herds troubled with minor complications.

The antiseptic, cleansing, purifying and body-building action of the buttermilk almost immediately straightens out lesser disorders and enables veterinarians to quickly discover the nature of the disease that must be treated.

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Semi-Solid Buttermilk is pure creamery buttermilk, pasteurized and condensed to point of maximum medicinal value per pound and is prepared in containers ranging from one gallon to 500 pounds.

For the veterinarian's use, we put up a case of six one-gallon cans selling for $4.00 F. O. B. Chicago. This gives the veterinarian a small, immediately available supply for the use of his clients. Twenty-eight factories assure low freight costs and the ability to secure **Semi-Solid** Buttermilk from convenient points.

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W. C. Mooney, Galesburg, Ill.
J. M. Sigmon, Stigler, Okla.

To the Editor: Although advancing years compel me to retire from active practice, I do not want to give up my best friend—VETERINARY MEDICINE. Enclosed find check for renewal of my subscription. A. L. Bennett, Ludlow, Mass.

The kid crop in some portions of Arizona suffered rather extensive losses during the fall of 1922 from the ravages of coyotes.

Bees are subjected to paratyphoid infection according to Bahr. It would be interesting to know whether fleas, flies and mosquitoes are subject to such infection.

A test has been discovered by the dairy division of the U. S. bureau of animal industry for the detection of hypochlorites and chloramins in milk and cream.

The Biologic Survey division of the United States department of agriculture is vested with the authority to enforce the migratory bird treaty act.

The decrease in the death-rate of humans from infectious diseases during the past 60 years is most marked in those diseases in which the portal of entrance is the digestive tract. Infections through the respiratory tract have not decreased.

Predatory animals exact a toll of from 20 million to 30 million dollars worth of livestock in the United States annually. It is estimated that the loss in New Mexico alone in 1917 from this cause was 34,350 cattle, 165,000 sheep and 850 horses valued at $2,715,000.

A series of articles devoted to the discussion of the diseases of poultry and the most successful methods of control are being published by the Kansas State college and are intended primarily for the practicing veterinarians of the state. These articles are timely and will, no doubt, be appreciated.

H. Morris of the Louisiana experiment station has proved that the anthrax bacillus will remain virulent in guinea pigs for 12 years while suspended in lake water, in milk for a period of 10 years, and in the feces of the dog 9 years.—Exp. Sta. Rec. Oct., 1922.

SIMPLICITY SANITARY KENNELS

AFFORD THE VETERINARIAN A MEANS OF EQUIPPING HIS ESTABLISHMENT FOR THE PROPER HOSPITALIZATION OF SMALL ANIMALS AT MINIMUM COST

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The deaths from cancer in the human in the U. S. registration are increased from 63 per 100,000 in 1900 to 81.6 in 1917.

During the World War the United States lost 80,000 soldiers. During the same two years 180,000 of our people died from cancer.

Sir David Semple found that the antirabic treatments that required a series of injections did not produce immunity quickly enough to prevent the very virulent strains of infection with which he had to contend, from producing the disease. Semple's work finally led him to the production of a carbolized rabies vaccine in the brain tissue of rabbits.—Mulford's Multigram.

"Better shipping crates for livestock" is the title of a bulletin recently published by the Wisconsin experiment station. In this bulletin it is found that the qualifications of a good crate are, first, light in weight; second, of proper size and construction to protect the animal during transit, and, third, durability. The loss to livestock due to injuries shipped in improper crates is large and can be prevented.

According to the November, 1922, "Public Health" of Michigan, the human death rate from cancer in that state for 1921 was 86.5 and is the highest in the history of the state.

Bengston has found that an anaerobe occurring in the larvae of the L. caesar produces a soluble toxin that is not neutralized by botulinus antitoxin A or B.

"The virus of bovine hemorrhagic septicemia attenuated by repeated passage through rabbits is capable of producing a lasting immunity in cattle and buffalo."—F. D'Herelle and G. LeLouet.

IOWA PREPARING FOR 1923

Iowa farmers who have been issued permits to vaccinate their own hogs under the laws of that state, must renew the license each year; and to make sure that no farmer forgets to do so, the state veterinarian, according to press reports, is urging the class of 1922 to speed up their applications before the year is up. The application for renewal, it is said, must be accompanied with a report on the number of hogs vaccinated under the commission.

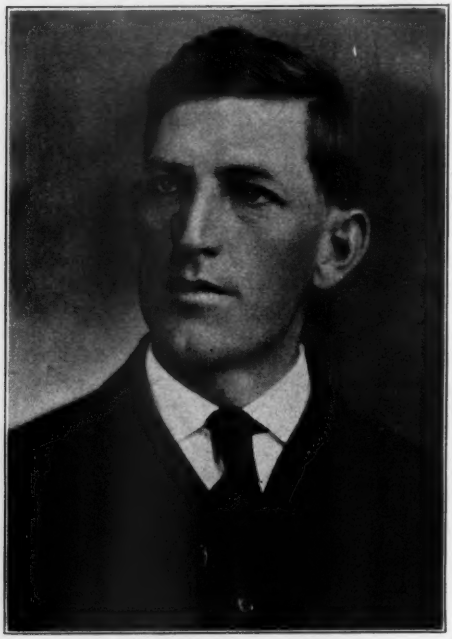
VETERINARY MEDICAL ASSOCIATION OF INDIANA

(Continued from page 153)

in which general lack of knowledge on rationing, breeding and judging of live stock on the part of many practitioners placed them at a decided disadvantage under those who were students of these fundamental branches of animal husbandry.

The action of the executive board in the matter of suspending Drs. Craig, Kixmiller and Julian was rescinded.

The clinic at the Indiana Veterinary College occupied the last day entirely from early morning until evening. A number of cases were left over for lack of time. The clinicians reported were: Cahill, Allen, Sigler and Merillat.



GEORGE W. GILLIE, V. S.
President of the Indiana Veterinary Medical Association

Dinner at the college by Dr. J. C. Vance, served to a hungry audience and clinicians, in quality and quantity, bears out his state-wide reputation as a caterer.

The Indiana association maintains a ladies' auxiliary of which Mrs. H. E. Bryan is president; Mrs. N. H. Demsey, vice-president; Mrs. Chas. H. York, secretary-treasurer.

The ladies acting on the entertainment committee for the meeting were Mesdames Newgent and Northrop. Mesdames Lidikey and Danner constituted the reception committee.

Dr. George W. Gillie was born in Berwickshire, Scotland, August 15, 1880. In the same section of Scotland his parents, James and Janet (Taylor) Gillie were born and reared. In 1882 his parents emigrated to America, settled on a farm and engaged in the dairy business for more than 30 years.

Doctor Gillie received his education in the public schools of Fort Wayne. He also attended the Purdue dairy courses and in preparation for his chosen profession entered the veterinary department at the Ohio State University, Columbus, Ohio, in 1904 and graduated in 1907 with the degree of veterinary surgery.

In 1908 he was appointed meat and dairy inspector at Fort Wayne, a position he held until 1914, and was also a deputy state veterinarian during that time. From 1914 to 1916 he engaged in the practice of his profession, when he was elected as sheriff of Allen County, serving four years in that office. At the expiration of his term of office he resumed his practice, in which he is now actively engaged.

During his college course he was a charter member of the Alpha Psi veterinary fraternity, member of the football team of '04, '05, 06, and captain of the track team in 1907. He is a member of the American Veterinary Medical Association; Indiana Veterinary Medical Association; Northeastern Indiana Veterinary Medical Association and the Fort Wayne Kennel Club. He is also a member of the Kiwanis Club, Odd Fellows, Scottish Rite bodies and a member of the Divan of Mizpah Temple Shrine.

On June 24, 1908, was solemnized the marriage of Doctor Gillie to Miss Grace Merion, who was born and reared at Columbus, Ohio, where she graduated from the Ohio State University. Dr. and Mrs. Gillie have two daughters, Jean and Charlotte.

In a year's milk a good producing cow eliminates from two to four times as much mineral matter as is contained in the entire skeleton.

VITAMINERAL

This is the season during which disorders, due to deficiencies of minerals and vitamins, are most prone to occur. Right now while animals are confined to dry lots and stables with no access to green pastures, must they draw upon their reserve of minerals and vitamins, deficiency in which means malnutrition, paralysis, rickets, abortion and sterility. The sure and certain preventive of these conditions is the inclusion of sufficient vitamins and minerals in the regimen. VITAMINERAL, the original Dr. A. T. Peter's formula, supplies this need of animals on dry feed, increases the gains and the milk flow, prevents, or aids in correcting abortion, sterility, malnutrition and their attendant ills.

VITAMINERAL is the only agent containing sufficient Vitamin B with minerals to successfully restore enfeebled tissues. It is endorsed and recommended by veterinarians everywhere and costs less than one cent per day, per head. It is sold exclusively to veterinarians.

Give it a trial in the herd of cattle in your locality where abortion is the worst, in the herd of swine that is making the lowest gains, in the flock of sheep where malnutrition is most apparent, and for horses that are out of condition. A single trial will convince you as it has others.

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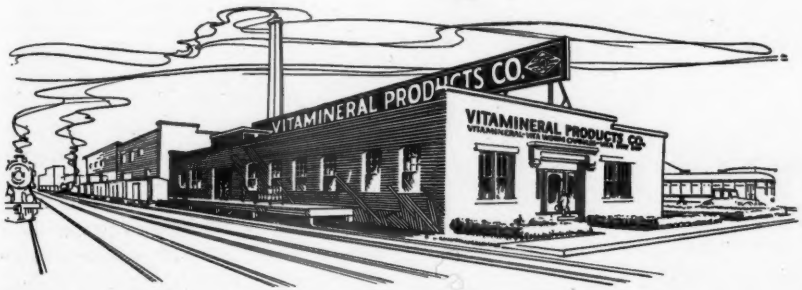

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THE MISSISSIPPI VETERINARY MEDICAL ASSOCIATION

The seventeenth annual meeting was held at Clarksdale, January 8 and 9, 1923. The attendance was fifty members and visitors. The headquarters were at the Alcazar Hotel and the sessions were held in the council chamber of the City Hall, President J. A. Barger presiding. Among those in attendance were:

J. A. Beaver, E. H. Berry, Tait Butler, C. W. Denman, F. J. Douglas, I. W. Edwards, W. L. Gates, M. K. Heath, B. F. Huston, A. J. Jones, M. J. Luster, W. L. Lacey, T. S. Mason, O. M. Norton, E. S. Norton, Walter Martin, J. T. Boyce, G. B. Bradshaw, John Oliver, H. Chadwick, R. M. Bannister, J. J. Kernen, P. H. Monnsen, J. F. Alston, Leo Hack, H. L. Fry, W. P. Ferguson, E. I. Smith, J. A. Barger, C. R. Waters, R. H. H. Mohlenhoff, H. W. Wilson, S. W. Sullivan, C. H. Stalworth and H. R. Ridgway.

Among the guests were A. C. Drach, of the Corn States Serum Company, of Omaha; H. W. Wilson, of Helena, Ark.; C. E. Wilkinson, of the Wilmer Veterinary Supply Company, Memphis; D. F. Luckey, St. Louis, and L. A. Merillat, editor of VETERINARY MEDICINE.

The literary program consisted of a number of exceptionally interesting papers and addresses of scientific and professional significance. J. T. Alston, of Tupelo, read a paper on "Cattle Practice" that covered many new methods of treating the more common complaints of cows. It will be published in an early issue of VETERINARY MEDICINE. "Black Tongue in Dogs," by O. M. Norton, of Greenville, brought out the liveliest discussion of the meeting, covering the major portion of the morning session, in which the discovery of a panacea for this troublesome disease of dogs was announced. The exact composition of the prescription was, however, not announced, as the author desires to experiment farther before making a full report of his observations to his colleagues.

"Foot Troubles in Mules and Horses," by I. W. Edwards of Vicksburg, relating the importance of such conditions to the veterinarians of Mississippi was verified at the clinic when not only the frequency but the seriousness of these troubles in that section were exhibited.

The annual banquet was featured by an illustrated lecture on tuberculosis by D. F. Luckey, of St. Louis, and addresses by E. I. Smith, of

BETZCO DYSTOCIA OUTFIT FOR SWINE PRACTICE

This outfit consists of the illuminator pictured above which throws a brilliant cone of light directly forward, making it ideal for illuminating the vagina of the sow. The instrument is 7 inches in length and will therefore reach back of the pelvic arch of any sow. The operator finds that he is enabled to see clearly any fetus caught back of the pelvis, and to hold the vaginal membranes away so a forcep may be attached to the fetus firmly and exactly without damage to the sow. A short toothed vulsellum forcep for live pigs and a long toothed one for dead ones, is recommended as best for use with this outfit.

The instrument is electrically lighted from the current of a small portable battery 15½x8½x6¾ inches, which may be readily carried anywhere. Six-foot cords are supplied with it so the operator has ample room to work.

Difficult, tedious cases become simple and easy to handle. Every veterinarian who uses this outfit this Spring is destined to win an enviable reputation in this kind of work, besides saving himself much time and trouble. Order one today under our famous "Satisfaction or Money Refunded" policy.

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the U. S. bureau of animal industry, and others. President Barger officiated as toastmaster.

The clinic lasting throughout the second day was held at Doctor Gates' veterinary hospital, which is one of the best and most complete establishments in the South. The clinic included mules, dogs, hogs and cattle. Operations were performed by Drs. Douglas, of New Orleans, Gates, of Clarksdale, Norton, of Greenville, Merillat, of Chicago, and others, whose names were not announced.

A number of shotes injected with hog-cholera virus seven days previous to the meeting were examined postmortem by Dr. A. C. Drach, of the Corn States Serum Company, as a demonstration of the early lesions of this disease. The technic of the examinations was skillfully done and the lesions admirably pointed out. It was a good exhibition of good autopsies.

Dr. I. W. Edwards, of Vicksburg, was elected president and Hugh L. Fry, re-elected secretary-treasurer. Grenada was selected as the meeting place for 1924.

STARK COUNTY (OHIO) ASSOCIATION

The Stark County Veterinary Association held the quarterly meeting recently at the residence of Dr. E. W. Brumter, 544½ East Main street. The following members were present:

Drs. H. A. Salt, New Philadelphia; L. A. Burkey, Sugar Creek; J. J. Van Voorhes, Mineral City; B. W. Groff, Massillon; C. D. Smith, Massillon; C. B. Frederick, Canton; G. L. Schneider, Canton; E. J. Wernet, Canton; A. L. Bircher, Canton; Dr. Quigley, Canton; Drs. J. H. Yoder, Louisville; F. L. Carr, Alliance.

Quite a number of subjects were brought up and discussed, chief of which was bovine tuberculosis, its control and eradication.

Luncheon was served by Mrs. Brumster, assisted by Mrs. Groff of Massillon.

Next meeting will be held at the home of Dr. G. L. Schneider, Canton, in March, at which time will be the election of officers.—Alliance (Ohio) Leader.

Comment: Envisage this meeting and note what it means in terms of pleasure, fraternity, publicity, social unity, professional pride and education.—Ed.

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has been thoroughly tested in the field and pronounced perfect in all respects. Made of steel. Folds up and can be easily carried in your auto. Weight about forty pounds. Automatically adjusts itself to pigs weighing from thirty to one hundred and fifty pounds.

Holds the pig in a convenient position to administer serum and virus and for operations which you may wish to perform (hernias and so forth). Last but not least, this automatic table makes a hit with your client as well as with you as it saves over half the labor in vaccinating pigs.

Price and terms on request.

Internal Treatment for Fistula of the Withers, Poll-Evil, Quittor, Nasal Gleet and Chronic Suppurations. An Ethical Preparation. A Standard Treatment for these conditions, put up in plain wrapper. Watch for case reports which will appear in VETERINARY MEDICINE soon.

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DR. C. A. CLARK, COLLEGE CORNER, OHIO

Dr. D. W. Hurst is the newly elected president of the Nebraska State Veterinary Medical association. Dr. F. R. Woodring, assistant chief of the local U. S. bureau of animal industry, is the new secretary-treasurer.

The Wabash Valley Veterinary Medical association held its annual meeting at Logansport, Ind., December 7, 1922, electing J. L. Kixmiller of that city, president; C. J. Hufty, of Burlington, first vice-president; O. B. Hyatt, of Kewanna, second vice-president; and G. M. Wagaman, of Kokomo, secretary-treasurer. The retiring officers are W. D. Wallace, of Marion, president; George Musselman, of Denver, vice-president; and F. E. Kling, of Peru, secretary-treasurer. The next meeting will be held at Kokomo, February 1, 1923.

The Chicago branch of the National Association of Bureau of Animal Industry Veterinarians maintains a school of instruction for veterinary inspectors at one of the local abattoirs every week. The school was instituted by Dr. W. N. Neil, inspector in charge. H. B. Raffensberger is president; C. M. Lombard, vice-president; W. H. Daly, treasurer, and L. T. Hopkins, secretary.

At the last meeting Dr. L. Enos Day lectured on "Diseases of the Skin"; Dr. Otto Horlein on "History of Meat Inspection"; and Dr. C. M. Lombard read a prepared paper on "Diseases of the Osseous System from the Standpoint of Meat Inspection." Other features were discussion on swine erysipelas, diamond skin disease and the exhibition of prepared pathological specimens from the laboratory.

The Illinois association meeting held at Chicago December 5-6-7, 1922, was well attended. The registration was 390 veterinarians. Drs. W. G. Houck and Maurice C. Hall of the United States bureau of animal industry; Drs. H. Preston Hoskins and A. D. Emmett of the Parke, Davis Laboratories of Detroit; Dr. T. H. Ferguson of Lake Geneva, Wisconsin; and Dr. E. A. Cahill of the Pitman-Moore Laboratories of Indianapolis were the contributors from out of the state.

Dr. H. R. Schwarze has purchased an interest in the Corn Belt Serum Company of East St. Louis, Ill., and will serve in the capacity of vice-president and veterinary director.

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We produce and carry a stock of all kinds

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PENNSYLVANIA ASSOCIATION ALLIED WITH AGRICULTURAL BODIES

The Pennsylvania State Veterinary Medical association is a member of the Allied Agricultural association of the Keystone state and holds its meetings in conjunction with other agricultural organizations of that state during "Agricultural Week." "This movement brings Pennsylvania veterinarians into intimate contact with live stock owners," says Secretary Staley. "and has proved of great value by placing the relationship between the live stock industry and the veterinary profession on its proper basis."

The fortieth annual meeting was held at Harrisburg, January 23-24, when a program of especial interest to practitioners was given to a large and enthusiastic attendance.

WYOMING LOOSES ITS STATE VETERINARIAN

Dr. B. F. Davis, state veterinarian of Wyoming for the past eight years has resigned. He resigned to enter the show business in the capacity of secretary-manager of one of the best known shows in the country, "Cheyenne Frontier Days," a show that has become a world institution. Started 27 years ago on a very small scale it has developed to such proportions that it is found necessary for one man to devote his entire time the year around to its management, and Dr. Davis has been selected to fill the position at a handsome salary.

The appointment comes as a reward for interest he has taken in this annual event since coming to Wyoming 16 years ago, and for the success he achieved as chairman of the executive committee in 1920 and 1922.

CONFERENCE OF VETERINARIANS AT PENNSYLVANIA

A conference of veterinarians will be held on February 27-28, at the School of Veterinary Medicine, University of Pennsylvania. The program, as far as completed, includes bovine pneumonia, ascaris in swine, other important diseases of swine, equine influenza and contagious pneumonia, some of the ailments peculiar to thoroughbreds and hunters, and poultry diseases of special interest. All veterinarians are cordially invited to attend. The Alumni Society has arranged to give a smoker on the evening of February 27 to those attending the conference. The program will be printed later and copies will be mailed on request.

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A UNIQUE EXHIBIT OF THE HEART'S ACTION

At the annual meeting of the Association of Indiana Veterinarians, held in Indianapolis in January, the Fort Dodge Serum Company, of Fort Dodge, Iowa, had on exhibition an illuminated ox heart in action, showing the exact movements of the mitral and semilunar valves in vivo. The arrangement required to make this exhibit is unique. The heart is prepared by tying off all the vessels except the aorta and pulmonary artery. These are cut off and covered with a glass window, that gives a view of the interior of the ventricles. These chambers are illuminated with an incandescent light (the tail light of an automobile) passed through an opening near the apex. Water gravitates through a hose into the chambers from a receptacle above, and the movement of the water through the chamber is maintained by a bellows worked with the foot on the floor.

The action of the mitral valve in keeping the water from flowing into the left auricle is seen through the aortic opening. Its action is regular and so complete that not a drop of water escapes, and that of the semilunar valve seen through the window in the pulmonary artery is quite as perfect. The pulsations were made to beat at about the normal rate, and gave to the spectator a vision of the heart's action that has never, so far as we know, been exhibited before.

GENERAL FEEDING RECOMMENDATION

1. Feed all the roughage a cow will feed up. A part of it should be a legume such as clover or alfalfa.
2. Feed some succulent feed, such as roots or silage.
3. Feed a balanced ration.
4. Feed grain in accordance with milk production; for a Holstein or Ayrshire approximately one pound of grain to each four pounds of milk; for a Guernsey or Jersey, one pound of grain to each three pounds of milk. Variety is desirable.
5. During short pasture supplement with silage or green feed together with some grain.
6. Feed and milk regularly.
7. Supply an abundance of pure fresh water at all times.
8. Give access to salt daily.
9. Purchase grain feeds on the basis of protein content and energy content and not alone on the cost per cwt.—Hoard's Dairyman.

A COMPLIMENT AND A KICK

I suppose a journal often wonders just where they fit with the average veterinarian. It might surprise them to know that some journals are called "too high brow" by the average practitioner. By this I mean he is fed up on experiments in detail and likes something readable.

In my estimation that is where VETERINARY MEDICINE shines. The articles are readable and are presented in an attractive way for easy reading.

Articles by Hall, Mayo, Kaupp, Eichhorn, Pammel, Quitman and the Merillats are my idea of good reading, not to mention others who only contribute now and then.

As I remember it, your journal was the only one in the country with backbone enough to come out and tell the truth about Camp Lee and about the farm bureau. I hoped at the time, and I still hope, you will follow such things and find the truth.

Is the article by McComb in your January issue worth the room it takes up in a perfectly good magazine? Any practitioner would rather have seen Hall's article continued to cover that space.

I understand you must cater to all, but does the army veterinarian come up to the practitioner on your subscription list?

Keene, N. H. W. H. Sumner, D. V. M.

Comment: The article by Lieut. McComb we regard as a timely contribution, at this day when too many practitioners are not taking full advantage of the therapeutic benefits of hygiene in handling their patients, but, on the other hand, seem to be "carried away" with the idea that modern therapy calls for hypodermic medication and specially prepared agents to the exclusion of comfort, feeding, kindness, clothing—in short, nursing.—Ed.

Dr. John F. McKenna, the well-known Pacific Coast veterinarian, located at Fresno, is slated for the position of state veterinarian, to succeed Dr. J. P. Iverson, the present incumbent.

Dr. R. A. LaPointe, of St. Peters, Minn., officiates as city veterinarian of that city.

Dr. A. L. Birch of Worthington, Minn., has moved to Hills, Minn., to open up an office for practice. He is a graduate of Ames.

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Formula suggested by
PROF. OSCAR V. BRUMLEY
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See October Number VETERINARY MEDICINE, Page 630

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LONG ESTABLISHED VETERINARY FIRM DISSOLVES

The firm of Smith and Scripture, Frankfort, Ind., was dissolved on the first day of the year, by the retirement of Dr. I. E. Scripture.

Thirty-four years ago, D. C. Smith and I. E. Scripture enrolled in the American Veterinary College at the same time. Thirty-two years ago they graduated, formed a partnership and located in Frankfort, Ind., then a village of three thousand inhabitants, now a city of twelve thousand. Except for the addition of hog vaccination to their practice, there has not been any great change in the practice throughout the thirty-two years it was maintained. Equine practice never lost its importance to the firm of Smith and Scripture. The practice throughout was a mixed practice. That it was successfully handled is indicated by the fact that Dr. Scripture, in good health, has seen fit to retire at the early age of 54. In withdrawing from the firm, Dr. Scripture made no sale, either of practice or equipment, merely withdrew from the firm, turning his interest in full over to his partner without cost.

NEW YORK VETERNARIANS SUFFER FIRE LOSS

McAuliffe and Moore, the popular veterinarians who have done all the veterinary work at the New York state fair for three years, had a loss of $6,000 in the recent disastrous fire in Cortland, New York, covered by only $1,000 insurance. The firm started in business in that city on January 6, 1919, just after receiving their discharges from the army, both of whom were veterinary officers.

Dr. Moore is a son of Dr. Veranus A. Moore, dean of the New York State veterinary college at Cornell. The young men started with little but their education, unlimited ambition and some experience. They have made good, building up an excellent business and covering a wide territory. They kept record books from the time they started in business and these books, which were some of the few things saved from the fire, show that they have had no less than 21,390 cases in the three years, or at the rate of over nineteen a day.

Their hospital was near the center of the fire zone. Six animals in the hospital were saved, and $1,000 worth of instruments and a library valued at $2,000, carried to a nearby garage, all burned together later.

Drs. McAuliffe and Moore wired Syracuse and that night $1,000 worth of instruments and drugs

arrived on the train. The same evening they attended to four calls and have continued practice ever since. In one week, to a day, they had secured just what they need in the line of a building, a two story one on the same street.

They now have a new airy drug room, excellent light for operative cases, telephone, needed office furniture, books, and one of the best hospitals for small animals to be found.

The success of these two young men in a territory that is already covered by the state college and its free clinics for animals is an inspiration to others.

NERVOUS DISTEMPER AND FRIGHT DISEASE

In addition to the well-described symptoms in the December issue of VETERINARY MEDICINE I have noticed, in severe cases, emphysematous swellings two inches in diameter that move quickly about on the abdomen and thorax. Dogs that have recovered from both severe and light attacks in 30 months have not contracted the trouble again.

A pig, bitten by a dog with which it was dividing its dinner, showed spells of fright disease one hour later and they continued until night, after which time it recovered. The pig had convulsions immediately after it turned away from the dog. And stranger still, a dog half a mile away that was kept chained contracted the disease 14 days after its owner had been traveling back and forth looking at the sick dog, indicating that he may have carried the infection home with him.

You may publish this or throw it in the waste basket, but facts are facts and that is what is wanted by the author of "Fright Disease" in the December issue.—D. J. P., Fla.

Miss Alice Crust, graduate of the Royal College of Veterinary Surgeons, is the first and only woman veterinarian in the United Kingdom. She is a daughter of Sir Leopold Crust, and served as bacteriologist in one of the veterinary hospitals of the British army in France during the war.

Dr. R. E. Lubbehusen of the North Dakota agricultural college has accepted the position vacated by Dr. W. A. Billings in the veterinary division of the University of Minnesota. Dr. Billings is now engaged in the veterinary extension work of Minnesota.

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ANTI-HOG CHOLERA SERUM

Made in the country—where the environment and surroundings are pure—free from all possible contaminating influences.

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Correspondence solicited from qualified veterinarians.

Lathrop Serum Co.
Lathrop, Mo.

Nebraska State Veterinary Medical Association

THE twenty-fifth annual meeting of the Nebraska Veterinary Medical Association held in Lincoln, December 12 and 13, was by far the most successful session from every point of view during the existence of the organization.

Headquarters of the association were maintained at the Hotel Lincoln where excellent facilities were obtainable for the literary and social portions of the program.

The morning session of the first day was opened with a rousing address of welcome from F. C. Zerung, mayor of the city of Lincoln, with response by Dr. D. W. Hurst, mayor of Tecumseh. These remarks were followed by the address of the president, Dr. Geo. A. Young, of Syracuse, and with a paper on the "Future of Our Profession," by Dr. O. H. Person.

Lecture by Dykstra

Dr. R. R. Dykstra, dean of the College of Veterinary Medicine, of the Kansas State Agricultural College, whose reputation as a practical lecturer on veterinary subjects is well known, was the last speaker during the morning session, and succeeded, as usual, in holding the interest of every one present to the last minute with his explanation of differential diagnosis of certain cattle diseases that resemble each other clinically.

Following lunch, a special street car conveyed the veterinarians from the hotel to the University farm where a general clinic was held in the horse pavillion, a place well fitted for the occasion. The clinic, in charge of Drs. Perrin, Foltz and Skidmore, included demonstrations of practical value to the practitioner.

Demonstration by Boyd

The first part of a demonstration in the treatment of sterility in cattle was given by Dr. W. L. Boyd of the University of Minnesota, using special subjects and selected specimens.

Many Classical Operations Performed

Dental nerve blocking, ventral hernia operation, caponizing, Ferguson's operation on hard milking cows, intravenous medication and blood infusion, ablation of bull's-eye shoulder, scrotal hernia operation by pleating method, umbilical hernia operation, and an operation on a hermaphrodite dog were participated in by Drs. R. R. Dykstra, J. S. Anderson, L. J. Boulier, S. W. Alford, L. V. Skidmore, P. Phillipson, Geo. A. Young, R. C. Gilmore, R. C. Moore and Fred Collins.

The Annual Banquet

The annual banquet for the veterinarians, their relatives and friends at 6:30 p. m. at the Lincoln Hotel with Dr. L. Van Es as a very able toastmaster, was a huge success in every respect with two hundred in attendance.

In order that the spirit of the season should not be forgotten the banquet room was gorgeously decorated in true holiday style. A great Christmas tree standing in the center of the floor and reaching to the high ceiling was fully decorated and adorned with many colored electric lights.

During the sumptuous repast of roast turkey with trimmings, favors were passed in the form of paper hats, toy balloons and horns which created much mirth and good cheer.

A song written by a member entitled "When the Roll Is Called Up Yonder, Who'll Be There," sung to the tune of "Old Black Joe," touched humorously upon the appointment of the next state veterinarian under the change of political faith in Nebraska.

Post-Prandial Speakers

The after-dinner speakers included Mr. August Eiche, president of the Lincoln Chamber of Commerce, who extended a welcome to the visitors on behalf of the organization which he represents, followed by a response by Dr. F. R. Woodring, assistant chief of the Nebraska Bureau of Animal Industry. Dr. A. R. Mitchell of Lincoln, member of the executive committee of the American Medical Association, gave the principal address of the evening, pointing out in a very able manner how much the medical and veterinary professions have in common. The speaking program was concluded with a short, snappy talk by Dr. R. R. Dykstra of Manhattan, Kan. Dancing followed the banquet.

The Second Day

Beginning the morning session of the second day the reports of the secretary-treasurer and various committees were read, followed by the election of thirteen new members, showing the rapid growth of the association.

Practical papers by Drs. T. P. Rose of York

and C. C. Hall of Omaha carried many helpful pointers to the veterinarians. The second part of Dr. Boyd's lecture on sterility in cattle illustrated by lantern slides covered a subject of such vast importance, given in such an efficient way that this alone was well worth the time given by every one in attendance.

Officers Elected

The election of officers for the ensuing year with the result that Dr. D. W. Hurst of Tecumseh was elected president, Dr. Elmer Watkins of Cambridge, vice-president, and Dr. F. R. Woodring of Lincoln, secretary-treasurer, ended the morning session.

Important Papers Read

During the afternoon a number of subjects of merit were discussed, the titles of which were: "Crow Foot Poisoning in Hogs," "Some Conditions in Swine Met in Practice," "Cocidiosis in Sheep," "Relation of Soil to Animal Diseases," "State Veterinarian's Office and the Practicing Veterinarian," and case reports and observations in animal disease control work by the following veterinarians in their respective order: Drs. D. W. Hurst, Maurice C. Hall, H. M. Martin, L. Van Es, D. D. Tobias and C. H. Hays.

Lecture by Maurice C. Hall

The lecture on "Parasitic Diseases of Live Stock and Control Measures," by Dr. Maurice C. Hall, of Washington, D. C., explained in minutest detail those conditions met with in every day practice on which the veterinarian is as a usual thing not so well informed as along some other lines. The information given was of inestimable value.

Grand Island was selected as the next meeting place.

Dr. W. T. Spencer, chairman of the local committee of arrangements, was especially commended for the professional program and Mrs. Carl J. Norden for the splendid entertainment planned and carried out for the visiting ladies.

During the session a Ladies' Auxiliary was formed with the election of Mrs. S. W. Alford of Lincoln as president, Mrs. J. S. Anderson of Aurora, vice-president, and Mrs. A. A. Anderson of Grand Island, secretary.

Thus ended the successful twenty-fifth meeting of the Nebraska Veterinary Medical Association.—F. R. Woodring, Secretary.

No sane person questions the value of a laboratory diagnosis.—Dykstra.

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SOUTHEASTERN STATES VETERINARY MEDICAL ASSOCIATION

The seventh annual meeting of the Southeastern States Veterinary Medical association was held in Chattanooga, Tenn., November 20-21, 1922.

The meeting was opened by an address of welcome by Mayor A. W. Chambliss, Chattanooga, and responded to by Dr. Tait Butler of Memphis, Tenn.

President W. M. Bell, of Nashville, delivered his address in an impressive manner and conveyed an optimistic view of the future of the veterinary profession in the South.

The convention was honored with the presence of Dr. W. H. Welch, Lexington, Ill., President of the American Veterinary Medical association, who delivered the principal address of the morning session. Among the many good points brought out in his address were the possibilities of poultry practice. He substantiated his opinion with his experiences in his own practice.

"The Veterinarians' Position in the Advancement of Southern Livestock Industry" was discussed by Dr. Tait Butler, of Memphis. He predicted that the veterinary profession would continue to grow and develop with faster strides than ever before. He also paid a fine tribute to Dr. C. A. Cary and Dr. W. H. Dalrymple, when he said they were the two most useful veterinarians to the profession in the South along the lines not concretely veterinary, as they had educated the people on basic principles of agriculture and livestock production.

The afternoon session was opened by a paper from Dr. T. P. White, U. S. bureau of animal industry, on "Our Swine Diseases Situation with Especial Reference to Cholera."

Drs. J. H. Reitz and W. H. Cheney discussed "Laboratory Diagnosis as an Aid to the Practitioner."

Mr. C. E. Brehm read a paper on "Relationship of the County Agent to the Veterinary Profession." He outlined the position that the county agent should have, from the county agent's viewpoint, and policies that would create a better feeling between agricultural demonstration agents and the veterinarian.

In a lantern slide lecture Dr. G. A. Roberts, of Sao Paulo, Brazil, discussed the common diseases among livestock in Brazil and showed the possibilities of the profession as he saw it

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during his three years' veterinary service in that country.

Dr. M. Jacobs of Knoxville acted as toastmaster at the banquet.

The following papers were read and discussed at the morning session of November 21: "Fright Disease in Dogs," Dr. M. Jacobs, and others; "Botulism in Dogs," Dr. P. C. McLain; "Summary Case Reports of Canine Practice in Dogs," Dr. W. J. Cross, and "Treatment of Intestinal Parasites in Dogs," Dr. J. G. Phelps.

At the business session the following officers were elected for the incoming year: President, M. Jacobs, Knoxville, Tenn.; first vice-president, A. L. Hirleman, Atlanta, Ga.; second vice-president, A. G. Richardson, Athens, Ga.; third vice-president, J. S. Andrade, Huntsville, Ala.; secretary-treasurer, John I. Handley, Atlanta, Ga.

The next meeting will be held in Greensboro, N. C., November 12-13, 1923.—John I. Handley, Secretary-Treasurer.

Dr. H. K. Gubser of Gilmore City, Iowa, has purchased the practice of Dr. Kulp of Adel, Iowa, and has moved there to take over the business.

WESTERN NEW YORK VETERINARY MEDICAL ASSOCIATION

The following officers were elected at the annual meeting held at Buffalo, December 15, 1922: C. C. Cleveland, Cattargus, president; C. D. Blaser, Buffalo, vice-president; F. F. Fehr, Buffalo, secretary-treasurer; and E. L. Volgenau and H. D. Martin, directors to serve for three years.

Dr. E. T. Faulder of Albany discussed tuberculosis and Dr. R. F. Frick, director of the Erie county farm bureau spoke about the co-operative work of the farm bureau with that of vested authorities and local veterinarians, in the matter of tuberculosis eradication.

The William's roaring operation by J. N. Frost of Ithaca, and ovariectomy in a bitch by J. L. Wilder of Akron were among the clinical demonstrations.

The ladies were entertained at a dinner and theater party with Mrs. F. F. Fehr as hostess.

The next meeting will be held at Akron, when the association will be the guest of Dr. W. L. Wilder of that city.

F. F. Fehr, Secretary-Treasurer.

Pituitin is a valuable agent in delayed parturition in sows, provided the os uteri is dilated.—W. A. Anderson.

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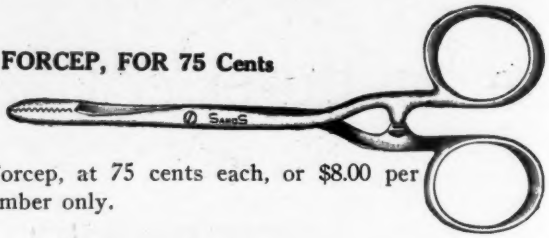

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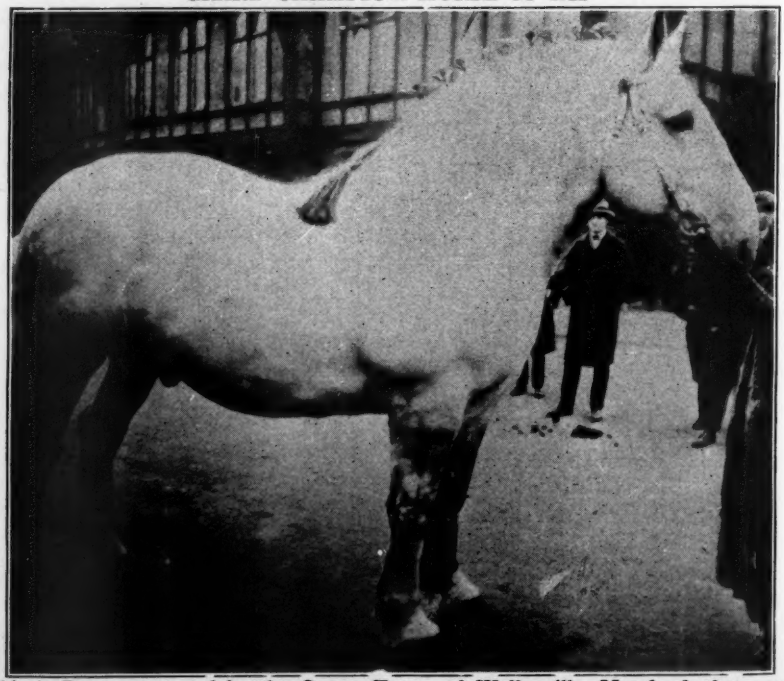

This is Rectorat, owned by the Oyster Estate of Walkerville, Maryland, that won the Grand Champion Prize at the International Livestock Show, Chicago, last year. He is valued at $40,000.

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TRYPAN BLUE AS A MICROBICIDE

The microbicide property of trypan blue has been demonstrated by Martin and Lasserre in experiments with dogs affected with piroplasmosis, a disease that is quite common in southeastern France. The drug was given in a two per cent solution in warm water injected into the saphenic vein. When the disease is chronic, and repetition is required, a one per cent solution may be given subcutaneously. The exact dosage prescribed is one centigram (.16 grains) per kilo (2.2 pounds) of body weight. The authors regard this dye specific for that disease.—Revue Veterinaire, Dec., 1922.

BUSTER JUNIOR

Buster Junior is attracting the attention of the "Native Sons," not only because he is an aristocrat but because he is a cesarean section puppy. He was saved to the aristocratic canine population of California by the surgical skill of Dr. Thos. W. Healey of San Jose, after Mrs. W. W. McQuade, the owner, had given up all hope of saving her precious canine possessions.

Dr. Robert Gysel, a practitioner of South Chicago since the early 90's, was elected president of the Chicago Veterinary Society at the December meeting. Dr. John Jaffray was re-elected secretary.

Dr. A. C. Cooley, Cleveland, Ohio, one of the old guard, a prominent association veterinarian, an ex-state veterinarian and one of the pioneer practitioners of Ohio, has been returned to the Ohio state legislature for his second term. He is a member of the Health, the Agricultural, State Betterment and the Economic committees of the House of Representatives.

BUT, JAZZ WON'T DO

G. Banks McNairy, superintendent of the Caswell Training School, Kinston, N. C., installed a phonograph in the barn where 80 cows were milked by the students, believing that it would be of value to the students. After continuing the phonograph music during milking time it was found that there had been an increased production of from 10 to 20 pounds of milk per cow per week. A further test was conducted and it was found that three cows produced a total of 932.6 pounds for one week without music and 993.9 pounds with music.

BOTANISTS PRONOUNCE RED SILAGE HARMLESS

The loss of some dairy cattle ascribed to a red mould found in the silage, was recently reported to the Ohio experiment station for investigation. Station authorities in laboratory and actual feeding tests find the red mould harmless.

This red mould, which grows readily on silage, has been found to be one of the normal silage ferments. However, the botanists say, other moulds or bacteria which may render the silage poisonous, may be present in the silage, either in the presence or absence of the red mould.

Feeding experiments conducted last season in the department of animal industry at the experiment station resulted in no ill effects to the animals under experiment.

CARRIERS OF TETANUS

The World War gave renewed prominence to tetanus as a menace to man. It served as a reminder of the peculiar behavior of B. tetani, giving emphasis to the anaerobic character of this micro-organism. The almost universal distribution of the bacilli in nature has long been known, their occurrence in garden soils and street dirt being attributed to the presence of animal excrement. That feces become distributing agents for the tetanus bacillus is explained by the fact that the bacillus exists in the intestine of many normal animals, especially of the herbivora. According to Noble, experimental evidence discloses that this micro-organism may multiply in the intestine of such animals. In fact, the intestine or rather the intestinal contents of certain individual animals, seems to offer especially favorable conditions for the growth of the tetanus bacillus; such animals are "tetanus carriers," comparable, in regard to the distribution of the organism, with typhoid or cholera carriers, among human beings.

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SHOCK AND DELAYED TREATMENT

I recently operated on a Pekinese bitch for dystocia, removing one large decomposed pup through the vagina and another one dead, but otherwise normal by cesarean section. The operation was performed under ether and was in every way successful in carrying out each step without untoward event. The bitch however, never regained consciousness and died 50 hours later. She was perfectly conscious before the operation, in fact quite bright and apparently strong. The owner is considerably purturbed over the loss and I blame myself for having been rather optimistic about the outcome. What do you think caused the death? What is my best explanation? S. T. A., Tex.

Reply: Delayed delivery especially in the finer breeds is never an event for optimism. It is always a dangerous condition whether cesarean section is performed or not; when parturition has dragged along to the point of decomposition of the fetus lodged in the pelvic lumen it is always exceptionally unfavorable. The one chance a surgeon has in these cases is to remove the uterus entirely. This rids the body of a hot-bed of infection, and if the patient survives the shock there is no other danger. The cause of death in this case seems to be shock. The unconscious state mentioned at least points to that condition. Your best explanation is to tell the owner that the dog had but one chance to recover and that you took that chance and failed. Say that the dog did not die from the operation, but in spite of it.

REMOVAL OF ACCESSORY TEATS

Will you please advise me how to remove accessory teats? When is the best time to remove them? When a teat has an opening in the side is it best to suture the wound after treating it?—R. J. M., Ind.

Reply: Ferguson recommends removal with a scalpel or scissors to the level of the main teat and then cauterization of the tract down to the teat duct with a red-hot iron. This should be done when the cow is dry. The same treatment applies to openings at the side of the teat.

There is, however, a pitfall in these operations. Sometimes the accessory opening leads upward to an accessory gland in which case closure pure and simple would be disastrous when the milk at the next period would find its outlet blocked. It is essential to make a diagnosis as to just what these accessory openings represent.

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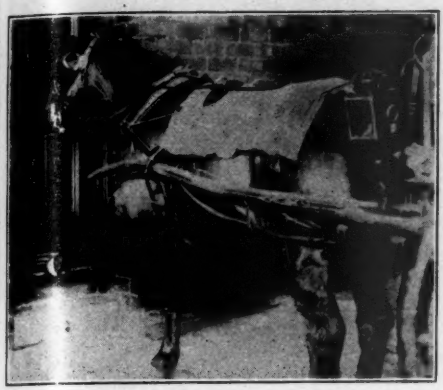
Some of this group might also be designated as foreign bodies, whose secretions are produced in sufficient amount to overshadow the action of the sexual maturity group. Retention of the placenta, of the corpus luteum, or fetus, inhibits normal ovarian function and, therefore, is of primary importance in the physical examination of an animal that fails to come in heat, or has a large flaccid uterus with or without metritis. Removal of these tissues is the first step in treatment of such cases. In certain animals more attention is paid to milk production than to the production of young, with the result that while there are a large number of cattle having a high production record, many of them are sterile. In the human family menstruation is normally absent during lactation, indicating that there is an inhibitory factor, which influences the ovarian activity. This acts in conjunction with the congested uterine mucous membrane which simulates the engorged functioning uterine tissue of pregnancy. In metritis, endometritis and cervicitis, pregnancy does not occur until these structures have become normal or their secretions reduced. Surgical measures are necessary in these cases. It would follow, however, that the use of synergistically balanced extracts of the sexual maturity group (ovary, thyroid, adrenal and pituitary) would be indicated in order that these antagonistic secretions might be neutralized and the normal activity of the part be restored.

Gland Groups of Suckling and Senility

The gland groups of suckling and senility are more applicable to the human individual and are not of such importance in the animal as to merit lengthy discussion. The next article in this series will continue the consideration of glandular activity and glandular disfunction.

The Kentucky Veterinary Medical Association will hold its annual meeting at Louisville, February 7-8, 1923. The headquarters will be at the Tyler Hotel. A highly instructive program has been provided, and a good attendance is expected. The officers are J. K. Ditto, Pleasureville, president; Wm. F. Coffee, La Center, first vice-president; J. A. Austin, Fulton, second vice-president; E. C. Higdon, Madisonville, third vice-president; and J. A. Winkler, Newport, secretary-treasurer.

AN EQUINE ANNUNCIATOR



This milkman's horse walks ahead of his driver to announce the coming of the morning's milk, by knocking at the doors of each customer.

THE OLD HORSE

I am an old, old horse. Three generations of mankind I have served, yet I never complain. All I ask for is a comfortable stall and some good food. As I stand in my comfortable stall I think about the times the children

and I have had together. As the snow flies and the wind howls, I miss their faces and their laughter. I hope that we will be together again when the trees leaf out and the days get warm, but my summers are about ended, and the harvest is nigh, for I am an old, old horse.—Arthur Abendshien, Turon, Kans.

In Sutton County, Texas, 92,299 Angora goats sheared 214,070 pounds of fleece in 1922. The average price received for the fleece was 83c per pound.

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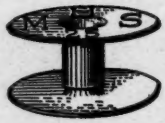

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The Kansas State Veterinary Medical Association held its ninth annual meeting at Topeka, Kansas, January 16-17. It was one of the most successful meetings of that large state organization, according to Secretary Pierson's report.

A detailed report of the proceedings will be published in an early issue.

Congratulations are extended to Dr. N. E. Peigh, of Hamlet, Indiana, in his marriage to Miss Eva Clark of Knox, Indiana, December 26, 1922.

Dr. A. D. Goldhaft, of Vineland, New Jersey, has plans for the construction of a new small animal hospital, modern in construction and equipment and with a capacity of 75 animals.

Dr. J. P. Doran of Ohio, Illinois, has been appointed field agent on tuberculosis eradication for Illinois by Chief Veterinarian Laird. Dr. Doran graduated at the Chicago Veterinary College in 1899 and has practiced at Ohio since that time. The salary is $2,100 a year.

Compulsatory vaccination of dogs against rabies is a reality in California. San Bernardino county south of Cajon Pass is under quarantine and "the vaccine required to meet the scramble for vaccination runs into real money," says Dr. A. D. Hubbell, city veterinarian of San Bernardino, to whom much of the work falls.

"There is a shortage of horseshoers in the large cities, and good drivers are becoming scarce," said Dr. D. S. Jaffray, president of the Illinois State Veterinary Medical association at a recent meeting of the Chicago Veterinary Society.